

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Gas Turbines, <= 23 MMBtu/hr heat input

Revision: 3.0

Equipment Rating: Less than 23 MMBtu/hr heat input

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NO _x	SO _x	CO	PM/PM10
Genxon Power Systems LLC 1550 KW natural gas-fired Kawasaki MIA-13A combustion gas turbine equipped with a gearbox connected to a 1500 KW generator.	7/7/98 (A/C no. 18547) A330-878-99 District Contact: Greg Solomon Bay Area AQMD (415) 749-4715 gsolomonm@baaqmd.gov	Catalytica Combustion Systems, Inc Xonon catalytic combustor 10 ppmvd @ 15% O ₂ , average over 3 hours	Catalytica Combustion Systems, Inc Xonon catalytic combustor 5 ppmvd @ 15% O ₂ , average over 3 hours		Catalytica Combustion Systems, Inc Xonon catalytic combustor 5 ppmvd @ 15% O ₂ , average over 3 hours	
Tempo Plastics Replacement of 7.8 MMBtu/hr with a 9 MMBtu/hr Allied Signal Engine model no. IE831-1000 industrial gas turbine fired on natural gas and pentane emissions from Tempo's manufacturing process	12/31/96 (A/C no. S-995-5-0) A330-764-97 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909		Low-NO _x combustor 0.109 lbm/MMBtu 24.8 lbm/day (Equivalent to 31 ppmvd at 15% oxygen)			Lube oil vent coalescer 0.012 lbm/MMBtu from exhaust 5% opacity from lube oil vents
Cogeneration Resources, Inc. Five 1.3 MW dual fuel-fired Kongsberg gas turbine cogeneration units fired on either natural gas or crude oil	11/25/89 (A/C no. 4181001 thru 4181005) A330-364-90 District Contact: Tom Goff San Joaquin Valley Unified APCD (805) 862-5200		Selective catalytic reduction 0.07 lbm/MMBtu 92% control 193.9 lbm/day			
Cogeneration Resources, Inc. Five 1.3 MW dual fuel gas turbine generators fired on natural gas or crude oil (cogeneration)	11/25/87 (A/C nos. 4181001 thru 4181005) A330-256-87 District Contact: Tom Goff San Joaquin Valley Unified APCD (805) 862-5200		0.07 lbm/MMBtu on crude oil 1.62 lbm/hr on gas or crude oil			
American Cogeneration Corp.	9/12/85		Johnson Matthey Co. selective			

Six 23 MMBtu/hr each Kongsberg KG 2 recuperated gas turbine cogeneration units with added gas firing capability and substituted NOx control equipment.	(A/C # 4147002A thru 4147007A) A330-088-85 District Contact: Tom Paxson San Joaquin Valley Unified APCD (former Kern County APCD) (805) 861-3682		catalytic reduction w/o water injection 10 ppmvd @ 15% O2 (natural gas) 90 ppmvd @ 15% O2 (fuel oil)			
Getty Oil Company Six 3.5 MW topping cycle, natural gas-fired, gas turbine engine topping cycle generators	3/29/85 (A/C # 4003578-583 A310-070-85 District Contact: Tom Paxson San Joaquin Valley Unified APCD (former Kern County APCD) (805) 861-3682	No control 1.65 lbm/hr	Water injection @ 0.8 lbm H2O per lbm fuel 7.6 lbm/hr each 195 ppmvd @ 15% O2		No control 4.49 lbm/hr	
American Cogeneration Company 5-1.3 MW crude oil fired gas turbine cogenerators w/scr	12/28/84 (A/C # 4147008-012) A330-062-85 District Contact: Tom Paxson San Joaquin Valley Unified APCD (former Kern County APCD) (805) 861-3682		Johnson Matthey Inc. selective catalytic reduction w/ammonia as a reducing agent 0.07 lb/MMBtu			
Getty Oil - Lost Hills Cogeneration 5000 hp Renske gas turbine followed by waste heat recovery steam generator for TEOR operation	5/9/84(A/C # 4003571-573) A330-40-84 District Contact: George Heinen San Joaquin Valley Unified APCD (former Kern County APCD) (559) 230-5909 george.heinen@valleyair.org		Water injection of 0.8:1 water to fuel gas (by weight) ratio 7.6 lb/hr			
University Cogeneration LTD - 1983 8563 KW Solar Mars natural gas-fired turbine with water injection and waste heat unfired boiler	3/21/84 (A/C # 4133001) A330-036-84 District Contact: Tom Paxson		Water injection, 0.9/1.0 w/f 714 lb/day			

	San Joaquin Valley Unified APCD (former Kern County APCD) (805) 861-3682					
Crown-Zellerbach Cogeneration 32 MW gas turbine generator (has a duct fired steam generator)	3/1/82 (A/C # 28179) A330-002-82 District Contact: Doug Wolf Bay Area AQMD (415) 771-6000		Steam/water injection and lo-NOx burners No limit			

CAPCOA BACT Clearinghouse

Source Category - 89.1

Gas Turbines, <= 23 MMBtu/hr heat input

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Equipment or Process: Gas Turbines, > 23 MMBtu/hr heat input

Revision: 3.0

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Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
La Paloma Generating Co. LLC Four 262 MW ABB model GT-24 combine cycle natural gas-fired turbines use for electric generation without supplemental firing; units are capable of steam augmentation.	5/26/99 (A/C # S-3412-1-1 thru 4-1; 98-AFC-2) A310-974-00 District Contact: Leonard Scandura San Joaquin Valley Unified APCD (661) 326-6900	No control 31.4 lbs/hr 10 ppmvd @ 15% O2 as propane	Dry low-NOx combustors and selective catalytic reduction 17.3 lbs/hr 2.5 ppmvd @ 15% O2	Low-sulfur fuel and fuel sulfur content limited to 0.75 gr/100 scf 3.73 lbs/hr 412.8 lbs/day	Oxidation catalyst 31.4 lbs/hr 10 ppmvd @ 15% O2 <= 221 MW 6 ppmvd @ 15% O2 >221 MW	Low-sulfur fuel (natural gas with total sulfur fuel limit of 0.75 gr/100 scf) 17.2 lbs/hr 412.8 lbs/day
Turlock Irrigation District 417 MMBtu/hr General Electric LM-5000 natural- gas-fired STIG gas turbine engine serving a 49 MW electrical generator	8/12/94 (A/C No.: N-3299-2-0) A330-960-00 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909 george.heinen@valleyair.org	Oxidization catalyst 0.00043% by weight VOC	Steam injection and selective catalytic reduction system 3.0 ppmvd @ 15% O2 with 25 ppmvd @ 15 O2 ammonia slip		Oxidization catalyst 11.8 ppmvd @ 15% O2	
Sutter Power Plant	4/14/99	Good combustion	Dry low-NOx combustors and	PUC natural gas assuming	Oxidation catalyst	PUC natural gas assuming

Two combine-cycle 1900 MMBtu/hr, gas-fired Westinghouse 501F gas turbines each nominally rated at 170 MW with 170 MMBtu/hr heat recovery steam generators driving a common 160 MW steam turbine	(Application no. 13005A and Application for Certification no. 97-AFC-2) A330-882-99 District Contact: Manny Ruiz Feather River AQMD (916) 634-7660 mruiz@yuba1.yubacoe.k12ca.us	practice and an oxidation catalyst 1 ppmvd @ 15% O2 on a calendar day average	selective catalytic reduction, plus low-NOx duct burners, 2.5 ppmvd @ 15% O2 over 1 hour	0.7 gr/100 scf 1 ppmvd @ 15% O2 on a calendar day average	4 ppmvd @ 15% O2 on a calculated day average	0.7 gr/100 scf 11.5 lb/hr per unit averaged over the calendar day
Federal Cold Storage Cogeneration 222 MMBtu/hr General Electric model LM2500-M-2 combined-cycle gas turbine producing 32 MWe (cogeneration)	n.d. (Reclaim Application no. 55711) A330-877-99 District Contact: Anthony Oshinuga South Coast AQMD (909) 396-2599 aoshinuga@aqmd.gov		Water injection and SCONox catalyst 2.0 ppmvd at 15% oxygen achieved for 6 months from 6/97 to 12/97 with 15 minute CEM averaging periods; EPA Region IX has deemed 2.0 ppmvd at 15% oxygen with 3 hour averaging as achieved in practice			
Bear Mountain Limited 454 MMBtu/hr GTE cogeneration system, including Stewart and Stevens General Electric LM5000 gas turbine generator set with heat recovery steam generator and inlet absorption chiller and heat exchanger rated at 48 MW	8/19/94 (A/C no. S-2049-1-2) A330-862-98 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909	Oxidation catalyst 0.6 ppmvd @ 15% O2 1.04 lb/hr	Steam injection and selective catalytic reduction 3.75 ppmvd @ 15% O2 143.7 lb/day (but 3.6 ppmvd @ 15% O2 accepted as a limit)		Oxidation catalyst 252.6 lb/day 10 ppmvd @ 15 % O2	
Crockett Cogeneration (C&H Sugar) 1780 MMBtu/hr	10/5/93 (A/C no. S-201) A330-859-98	Engelhard oxidation catalyst 352.6 lbm/day	Dry low-NOx combusters and a Mitsubishi Heavy Industries America selective		Engelhard oxidation catalyst 5.9 ppmvd @	

G E model PG7221(FA), i.e., Frame 7FA, with heat recovery steam generator having low NOx duct burners with a total rated capacity of 349 MMBtu/hr producing 240 MW (combined cycle and cogeneration).	District Contact: Carol Allen Bay Area AQMD (415) 749-4702	(Approximately 50% control)	catalytic reduction 5 ppmvd @ 15% O2		15% O2 (Approximately 90% control)	
SEPCO 920 MMBtu/hr combined cycle natural gas-fired General Electric Frame 7EA gas turbine-generator set with a supplemental firing capacity of 362.1 MMBtu/hr and producing 82 MW	10/5/94 (A/C no. 10883) A330-855-98 District Contact: Brian Krebs Sacramento Metropolitan AQMD (916) 386-6628	Oxidation catalyst 3.70 lbm/hr (Assumed 5% destruction efficiency)	Dry low NOx combustion and selective catalytic reduction 5 ppmvd at 15% oxygen 9.90 lbm/hr (Applicant proposed 2.6 ppmvd at 15% oxygen to lower offset liability)			
Carson Energy Group and Central Valley Financing 450 MMBtu/hr simple-cycle General Electric LM6000 gas turbine-generator set producing 42 MW. Unit can be fired on natural gas or cofired with digester gas and natural gas.	7/23/93 (A/C no. 11013) A330-854-98 District Contact: Brian Krebs Sacramento Metropolitan AQMD (916) 386-6628	Oxidation catalyst 2.46 lbm/hr (Assumed 10% destruction efficiency) Source Test Results: 1.08 lbm/hr as methane	Water injection and selective catalytic reduction 5 ppmvd at 15% oxygen 7.33 lbm/hr Source Test Results: 4.72 ppmvd at 15% O2			
Carson Energy 450 MMBtu/hr combined-cycle General Electric LM6000 gas turbine-generator set with a supplemental firing capacity of 99.8 MMBtu/hr and producing 42 MW. Unit can be fired on natural	7/23/93 (A/C no. 11012) A330-853-98 District Contact: Brian Krebs Sacramento Metropolitan AQMD (916) 386-6628		Water injection and selective catalytic reduction 5 ppmvd at 15% oxygen 7.33 lbm/hr Source Test Results: 4 ppmvd @ 15% O2			

gas or cofired with digester gas and natural gas.						
Sacramento Power Authority (Campbell Soup) 1257 MMBtu/hr combined-cycle natural gas-fired Siemens V84.2 gas turbine-generator with water injection for power augmentation and 200 MMBtu/hr of supplemental firing capacity and producing 103 MW	8/19/94 (A/C no. 11456) A330-852-98 District Contact: Brian Krebs Sacramento Metropolitan AQMD (916) 386-6628	Oxidation catalyst 3.21 lbm/hrr (Assumed 5% destruction efficiency)	Water injection and selective catalytic reduction 3 ppmvd at 15% oxygen 13.33 lbm/hr			
Sacramento Cogeneration Authority (Proctor and Gamble) 421.4 MMBtu/hr combined-cycle natural gas-fired General Electric LM6000 gas turbine-generator with supplemental firing capacity of 75.4 MMBtu/hr producing 42 MW	8/19/94 (A/C no. 11435) A330-851-98 District Contact: Brian Krebs Sacramento Metropolitan AQMD (916) 386-6628	Oxidation catalyst 1.1 lbm/hrr (Assumed 10% destruction efficiency)	Dry low NOx combustion and selective catalytic reduction 5 ppmvd at 15% oxygen 7.7 lbm/hr			
Sacramento Cogeneration Authority (Proctor and Gamble) 421.4 MMBtu/hr combined-cycle natural gas-fired General Electric LM6000 gas turbine-generator with supplemental firing capacity of 75.4 MMBtu/hr producing 42 MW	8/19/94 (A/C no. 11434) A330-850-98 District Contact: Brian Krebs Sacramento Metropolitan AQMD (916) 386-6628	Oxidation catalyst 1.1 lbm/hrr (Assumed 10% destruction efficiency)	Water injection and selective catalytic reduction 5 ppmvd at 15% oxygen 7.7 lbm/hr			

<p>Sacramento Cogeneration Authority (Proctor and Gamble)</p> <p>421.4 MMBtu/hr simple-cycle natural gas-fired General Electric LM6000 gas turbine-generator producing 42 MW</p>	<p>8/19/94</p> <p>(A/C no. 11436)</p> <p>A330-849-98</p> <p>District Contact: Brian Krebs Sacramento Metropolitan AQMD (916) 386-6628</p>	<p>Oxidation catalyst</p> <p>1.1 lbm/hr (Assumed 10% destruction efficiency)</p>	<p>Water injection and selective catalytic reduction</p> <p>5 ppmvd at 15% oxygen 7.7 lbm/hr</p>			
<p>Southern California Gas Company</p> <p>50.1 MMBtu/hr variable load natural gas-fired turbine</p>	<p>5/14/97</p> <p>(A/C no. S-1792-5-3)</p> <p>A330-791-97</p> <p>District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909</p>		<p>Dry low NOx combustor</p> <p>25 ppmvd NOx @ 15% O2</p>			
<p>Northern California Power Agency</p> <p>325 MMBtu/hr natural gas-fired GE Frame 5 gas turbine powering a 25.24 MW electrical generator used as a black generating unit start peak load electrical generating unit with fuel no. 2 backup fuel</p>	<p>10/2/97</p> <p>(A/C no. N-583-1-2)</p> <p>A330-785-97</p> <p>District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909</p>	<p>Natural gas firing</p> <p>18 ppmvd @ 15% O2</p>	<p>Water injection</p> <p>42 ppmvd @ 15% O2</p>		<p>Natural gas, air intake cooler, venting the lube oil vent into the exhaust stream of the turbine for oxidation of the smoke.</p> <p>4.3 lbm/day</p>	
<p>UNOCAL</p> <p>606.2 MMBtu/hr Westinghouse model CW251B10 gas turbine</p>	<p>7/18/89</p> <p>(App. nos. 168294 and 168295)</p> <p>A330-612-94</p> <p>District Contact: Ngoc Tran South Coast AQMD (909) 396-2606 ntran@aqmd.gov</p>		<p>Ishikawajima-Harima Heavy Industries selective catalytic reduction and water injection</p> <p>9 ppmvd at 15% oxygen</p>		<p>Engelhard CO oxidation catalyst</p> <p>10 ppmvd at 15% oxygen</p>	
<p>Arroyo Energy L.P., ICEFLOE Escondido, CA</p>	<p>11/3/92</p> <p>(App. no. 911504)</p>		<p>Water injection, selective catalytic reduction, and</p>			

386 MMBtu/hr General Electric LM6000 combustion turbine fired on natural gas and producing 42.4 MWe (cogeneration)	A330-567-93 District Contact: Bob Batten San Diego Co. APCD (619) 694-3316		automatic ammonia injection control 5 ppmvd at 15% oxygen			
Southern California Gas Wheeler Ridge Gas Solar model H 47.64 MMBtu/hr gas turbine fired on natural gas driving two Solar model C3042 two-stage centrifugal gas compressors	10/29/91 (A/C no. 2046009 thru 2046011) A330-499-91 District Contact: Tom Goff San Joaquin Valley Unified APCD (Kern Zone) (805) 862-5200		High temperature selective catalytic reduction with Norton zeolite catalyst (no steam or water injection) 5 ppmvd at steady state conditions and 8 ppmvd at non-steady state conditions			
Granite Road Limited 460.9 MMBtu/hr General Electric LM-5000 gas turbine producing 34.5 MW (cogeneration)	9/28/89 (A/C no. 4216001) A330-478-91 District Contact: Tom Goff San Joaquin Valley Unified APCD (805) 862-5200		Steam injection and selective catalytic reduction 3.5 ppmvd at 15% oxygen (Equivalent to 97% control efficiency and 0.013 lbm/MMBtu)			
Kingsburg Energy Systems 252 MMBtu/hr General Electric LM-2500 gas turbine with 110 MMBtu/hr gas-fired duct burner and heat recovery boiler producing 30,000 lbm steam per hour and 34.5 MW; turbine is gas fired with 0.03% S fuel oil no. 2 as backup	9/28/89 (A/C no. 3040230101) A330-473-91 District Contact: Martin Keast San Joaquin Valley Unified APCD (559) 230-6000		Steam injection and selective catalytic reduction 6 ppmvd at 15% oxygen 6.2 lbm/hr			
Sargent Canyon Cogeneration Co. 471.2 MMBtu/hr	11/19/90 (A/C no. 5666A)		General Electric dry low-NOx combustion system and			

gas-fired General Electric Frame 6 gas turbine with Nooter Erickson heat recovery steam generator producing 220,000 lbm steam/hr and 42.5 MWe (cogeneration)	A330-444-90 District Contact: Gregory Chee Monterey Bay Unified APCD (408) 443-1135		selective catalytic reduction 6 ppmvd at 15% oxygen 240 lbm/day			
Salinas River Cogeneration Company 479.6 MMBtu/hr gas-fired General Electric Frame 6 gas turbine with Nooter Erickson heat recovery steam generator producing 220,000 lbm steam/hr and 43.2 MWe (cogeneration)	11/19/90 (A/C no. 5142A) A330-443-90 District Contact: Gregory Chee Monterey Bay Unified APCD (408) 443-1135		General Electric dry low-NOx combustion system and selective catalytic reduction 6 ppmvd at 15% oxygen 240 lbm/day			
City of Anaheim 442 MMBtu/hr General Electric PGLM5000 gas turbine fired on natural gas with 47 MWe capacity and limited to 7 hrs/day of operation (cogeneration)	9/15/89 (App. no. 188875) A330-382-90 District Contact: Fred del Rosario South Coast AQMD (909) 396-2663		Steam injection and selective catalytic reduction 7.6 ppmvd at 15% oxygen 90 lbm/day			
Badger Creek Ltd. 457.8 MMBtu/hr Stewart and Stevenson General Electric LM-5000 gas turbine cogeneration unit fired on natural gas producing 48.5 MW electricity and 135,000 lbm/hr steam	10/30/89 (A/C no. 4192001A) A330-359-90 District Contact: Tom Goff San Joaquin Valley Unified APCD (805) 862-5200		Steam injection and selective catalytic reduction 3.75 ppmvd at 15% oxygen 0.0135 lbm/MMBtu 147.86 lbm/day			
O'Brien Calif. Cogen. II	1/4/90		Steam injection and Hitachi			

LM-5000-STIG-120 General Electric gas turbine fired on natural gas with gas-fired 80 MMBtu/hr John Zink low-NOx burner producing 49.5 MW of electricity (cogeneration)	(A/C no. 4586) A330-350-90 District Contact: David Craft Monterey Bay Unified APCD (408) 443-1135		dry-type selective catalytic reduction 9 ppmvd at 15% oxygen 350.4 lbm/day			
Mobil E & P U.S. Inc. Three 61.5 MMBtu/hr gas-fired Solar Centaur Model T-4500 gas turbines with 38.7 MMBtu/hr duct burner producing 3.2 MW gross each (cogeneration)	9/5/89 (A/C no. 4011503 thru 4011505) A330-343-89 District Contact: Tom Goff San Joaquin Valley Unified APCD (805) 862-5200		Water injection and selective catalytic reduction 2.083 lbm/hr per unit	PUC quality natural gas 0.010 lbm/hr per unit		PUC quality natural gas 0.960 lbm/hr per unit
Exxon Co. USA SYU Expansion Project 463 MMBtu/hr gas-fired General Electric PG5361(P) gas turbine with 345 MMBtu/hr gas-fired heat recovery steam generator (cogeneration with 49 MW capacity)	11/19/87 (A/C no. 5651) A330-308-89 District Contact: Sanjib Mukherji Santa Barbara Co. APCD (805) 961-8800	Use of pipeline-quality gas; proper combustor operation 3.3 lbm/hr	Steam injection on turbine, low-NOx burner on duct burner, and selective catalytic reduction on both 27 ppmv at 3% oxygen 16.3 lbm/hr 18.6 tons/quarter (Equivalent level of 0.031 lbm/MMBtu)	Use of pipeline-quality gas with sulfur content less than 24 ppmvd 2.0 lbm/hr	Proper combustor operation 17 lbm/hr	Use of pipeline-quality gas; proper combustor operation 8.6 lbm/hr
Mojave Cogeneration Co. 490 MMBtu/hr Westinghouse model CW 251 B-10 gas turbine fired on natural gas or fuel oil no. 2 producing 45 MWe (cogeneration)	1/12/89 (A/C no. 0164001) A330-303-88 District Contact: Tom Paxson Kern County APCD (805) 861-2593		Water injection and selective catalytic reduction 15 lbm/hr (Equivalent to 8.33 ppmvd at 15% oxygen or 0.031 lbm/MMBtu)	Natural gas or 0.05% fuel oil sulfur content by wt. Gas firing: 0.58 lbm/hr (Equivalent to 0.136 ppmvd at 15% oxygen) Oil firing:		Natural gas or 0.05% fuel oil sulfur content by wt. Gas firing: 0.002 gr/dscf (Equivalent to 0.017 lbm/MMBtu) Oil firing: 0.005 gr/dscf

				25.22 lbm/hr (Equivalent to 0.051 lbm/MMBtu)		(Equivalent to 0.0357 lbm/MMBtu)
Mobil Oil-San Ardo Two 81.4 MMBtu/hr Solar gas turbines each with 34.78 MMBtu/hr duct burners fired on nat. gas producing 58,000 lbm/hr steam and 3.1 MWe each (cogeneration)	9/27/88 (A/C no. 4335 and 4471) A330-302-88 District Contact: Fred Thoits Monterey Bay Unified APCD (408) 443-1135		Water injection & Steuler zeolite honeycomb molecular sieve type catalyst (selective catalytic reduction) 15 ppmvd at 15% oxygen (Equivalent to 0.047 lbm/MMBtu)			
Texaco-Yokum Cogeneration Project Two 248.6 MMBtu/hr General Electric LM-2500 gas turbines producing 24.5 MWe each (cogeneration)	11/1/88 (A/C no. 3916 and 3917) A330-301-88 District Contact: Fred Thoits Monterey Bay Unified APCD (408) 443-1135		Not selected at time of A/C issuance 9 ppmvd at 15% oxygen (Equivalent to 0.031 lbm/MMBtu)		Not selected at time of A/C issuance 10 ppmvd at 15% oxygen (Equivalent to 0.022 lbm/MMBtu)	
Mobil E & P U.S. Inc. 46 MMBtu/hr gas-fired Solar T-4500 turbine with 34.8 MMBtu/hr duct burner producing 3.11 MW (cogeneration)	9/27/88 (A/C no. 4335) A330-298-88 District Contact: Fred Thoits Monterey Bay Unified APCD (408) 443-1135		Water injection and selective catalytic reduction 0.047 lbm/MMBtu 3.8 lbm/hr			
SMUD/Campbell Soup 600 MMBtu/hr gas-fired General Electric Frame 7 turbine with heat recovery steam generator producing 80 MWe (cogeneration)	8/9/88 (A/C no. 8585 and 8586) A330-296-88 District Contact: Bruce Nixon Sacramento Metropolitan AQMD (916) 386-6650		Steam or water injection 25 ppmvd at 15% oxygen			
Monarch Cogeneration 92.2 MMBtu/hr	4/18/86 (A/C no. 4164004 and 4164005)		Selective catalytic reduction 22 ppmvd at 15%			

gas-fired Solar turbine model no. GSC 12000 Mars with a heat recovery steam generator producing 8.2 MW and 40,000 lbm steam/hr (cogeneration)	A330-292-88 and A330-293-88 District Contact: Tom Goff San Joaquin Valley Unified APCD (805) 862-5200		oxygen 8.02 lbm/hr			
Chevron USA, Inc. Two 531 MMBtu/hr Brown Boveri Type 8 gas turbines with 250 MMBtu/hr duct burners producing 99 MW total (cogeneration)	9/4/87 (A/C no. 30331) A330-277-88 District Contact: Ellen Linder Bay Area AQMD (415) 771-6000		Steam injection and selective catalytic reduction 10 ppmvd at 15% oxygen			
Simpson Paper Co. General Electric LM5000 gas turbine cogeneration unit producing 49.5 MWe of electricity fired on natural gas with an input capacity of 420,000 scf/hr	6/22/87 (A/C no. 86-40) A330-263-88 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909		Steam injection and selective catalytic reduction 6 ppmvd at 15% oxygen 233 lbm/day		Combustion controls 55 ppmvd at 15% oxygen 1302 lbm/day	
San Joaquin Cogeneration Ltd. General Electric LM5000 gas turbine cogeneration unit producing 48.6e MW of electricity fired on natural gas with a rated input of 434000 scf/hr	6/19/87 (A/C no. 86-123) A330-262-88 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909		Steam injection and selective catalytic reduction 6 ppmvd at 15% oxygen (Estimated emissions level of 238 lbm/day)		Combustion control 55 ppmvd at 15% oxygen (Estimated emissions level of 1326 lbm/day)	
Combined Energy Resources 268.5 MMBtu/hr General Electric	2/26/88 (App. no. 156328) A330-261-88		Water injection and selective catalytic reduction 199 lbm/day (Equivalent to			

LM2500 gas turbine cogeneration unit producing 25.94 MW of electricity (revision to record A330-172-87)	District Contact: Tom Goff San Joaquin Valley Unified APCD (805) 862-5200		0.03 lbm/MMBtu)			
Basic American Foods Energy American I 887.2 MMBtu/hr General Electric Frame 7 gas turbine producing 85.5 MW with a 36.4 MW steam turbine; unit will fire natural gas or FO no. 2 (cogeneration with combined cycle)	7/8/87 (CEC docket no. 85-AFC-5) A330-258-88 District Contact: Fred Thoits Monterey Bay Unified APCD (408) 443-1135		Steam injection and SCR Gas-firing: 0.034 lbm/MMBtu 9 ppmvd @ 15% O2 (15 ppmvd @ 15% O2 determined to be BACT by the district) Oil-firing: 0.054 lbm/MMBtu 15 ppmvd @ 15% O2 (23 ppmvd at 15% O2 determined to be BACT by the distr	0.05% sulfur content maximum when firing on standby fuel oil no. 2 No limit (Estimated emission level of 1160 lbm/day)		
AES Placerita Cogeneration 530 MMBtu/hr Brown Boveri Type 8 gas turbine with heat recovery boiler (cogeneration producing 43.8 MW)	7/2/87 (App. no. 153018 and 153052) A330-254-87 and A330-253-87 District Contact: Mark Liu South Coast AQMD (909) 396-2538 mliu@aqmd.gov		Steam injection and selective catalytic reduction 9 ppmvd at 15% oxygen			
Power Development Company 49 MMBtu/hr Allison 501K85 gas turbine producing 3.7 MW (cogeneration)	6/22/87 (App. nos. 152305 and 152289) A330-230-87 District Contact: Mark Liu South Coast AQMD (909) 396-2538 mliu@aqmd.gov		Water injection and selective catalytic reduction 9 ppmvd at 15% oxygen			
AES Placerita Cogeneration 519 MMBtu/hr Brown Boveri Type 8 501K85	3/10/86 (App. nos. 125116, 125117, 128014, and 130270) A330-210-87		Water injection and selective catalytic reduction 7 ppmvd at 15% oxygen			

gas turbine (cogeneration)	District Contact: Mark Liu South Coast AQMD (909) 396-2538 mliu@aqmd.gov					
Calif. Institute of Technology 60 MMBtu/hr Dresser Clark Model DC-990 gas turbine- generator set (cogeneration)	1/20/87 (App. nos. 124694 and 149142) A330-183-87 District Contact: Mark Liu South Coast AQMD (909) 396-2538 mliu@aqmd.gov		Water injection and selective catalytic reduction 9 ppmvd at 15% oxygen			
Combined Energy Resources 277.3 MMBtu/hr Rolls Royce RB-211 gas turbine with Coen duct burner producing 27.5 MW (cogeneration)	3/3/87 (A/C no. 4167001) A330-172-87 District Contact: Tom Goff San Joaquin Valley Unified APCD (805) 862-5200	Oxidizing catalyst 44% control 7.95 lbm/hr	Water injection at 1.28:1 water- to-fuel for turbine; low-NOx burner for duct burner; selective catalytic reduction for both 199 lbm/day			
City of Santa Clara 29.4 MW General Electric Frame 5 gas turbine (simple-cycle peaking unit)	1/5/87 (A/C no. 31527) A330-166-87 District Contact: Ellen Linder Bay Area AQMD (415) 771-6000		Water injection 42 ppmvd at 15% oxygen			
O'Brien Energy Systems 359.5 MMBtu/hr Ishikawajima Harima IHI IM5000 gas turbine with duct burner producing 34 MWe (cogeneration)	12/30/86 (A/C no. 3627) A330-163-87 District Contact: David Craft Monterey Bay Unified APCD (408) 443-1135		Water injection and selective catalytic reduction 15 ppmvd at 15% oxygen			
SCPI N. Midway 46.7 MMBtu/hr Allison 501KB gas-fired turbine producing 4MW (cogeneration)	12/24/86 (A/C no. 4013603A) A330-162-87) District Contact:			Natural gas fuel with less than 1 gr S/100 cf 0.1 lbm/hr (equivalent		Natural gas fuel 0.69 lbm/hr (equivalent to 0.015 lbm/MMBtu)

	Tom Goff San Joaquin Valley Unified APCD (805) 862-5200			to 0.002 lbm/MMBtu)		
California Dept. of Corrections Two 38.5 MMBtu/hr CSC-4500 gas turbines fired on natural gas or no. 2 fuel oil and 7.26 MMBtu/hr duct burner producing 5.1 MWe (cogeneration)	12/8/86 (A/C no. 8703) A330-159-86 District Contact: George Heinen Kings Co. APCD (now the San Joaquin Valley Unified APCD) (559) 230-5909		Water injection at 1 lbm water to 1 lbm fuel 38 ppmv at 15% oxygen while firing on gas			
Kern Front Limited. 25 MW General Electric LM2500 gas turbine engine cogeneration system injection at maximum heat input rate of 250 MMBtu/hr	11/4/86 (A/C S-1120-1-7) A330-157-86 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909	Oxidation catalyst 3.12 lb/hr 74.84 lb/day	Water injection and selective catalytic reduction 96.96 lb/day 4.5 ppmvd @ 15% O2		Oxidation catalyst 669.19 lb/day 51 ppmvd @ 15% O2	
Double "C" Ltd. Two 253 MMBtu/hr General Electric LM2500 gas turbines producing 25 MW (cogeneration)	11/4/86 (A/C nos. 4165001, 4165002) A330-156-86 District Contact: Tom Goff Kern Co. APCD (now the San Joaquin Valley Unified APCD) (805) 862-5200		Water injection and selective catalytic reduction 0.0162 lbm/ MMBtu (equivalent to 4.5 ppmvd at 15% oxygen or 95.8% control)			
Sierra Ltd. Two 250.3 MMBtu/hr General Electric LM2500 gas turbines producing 49.9 MW (cogeneration)	8/7/86 (A/C nos. 4162001, 4162002) A330-146-86 District Contact: Tom Goff Kern Co. APCD (805) 862-5200		Steam injection and selective catalytic reduction 4.5 ppmvd at 15% oxygen (95.86% control)			
Western Power Systems, Inc. General Electric LM2500 gas	3/15/86 (A/C no. 3060080101) A330-139-86		Water injection and selective catalytic reduction 9 ppmvd at 15%			

turbine producing 26.5 MW (cogeneration)	District Contact: Simeon Bugay Fresno Co. APCD (209) 445-3239		oxygen			
Chevron-Gaviota Six 47.2 MMBtu/hr Allison 501KB gas turbines each with 55.3 MMBtu/hr duct burners with common exhaust manifold; each turbine produces 17.5 MWe (cogeneration)	2/6/86 (A/C no. 5704) A330-125-86 District Contact: Bill Master Santa Barbara Co. APCD (805) 961-8800	Pipeline quality gas as fuel 2.14 lbm/hr total	Water injection for turbine, low-NOx burner for duct burner, selective catalytic reduction for both 19 ppmvd at 3% oxygen	Pipeline quality gas as fuel, 4 ppm H2S maximum 0.38 lbm/hr total	Pipeline quality gas as fuel 32.3 lbm/hr total	Pipeline quality gas as fuel 4.94 lbm/hr total
Southeast Energy, Inc. GEC Rolls-Royce SK30 gas turbine with duct burner producing 49.9 MWe (cogeneration)	4/18/86 (A/C no 3094001) A330-120-86 District Contact: Tom Goff Kern Co. APCD (now the San Joaquin Valley Unified APCD) (805) 862-5200		Steam injection for turbine, low-NOx burner for duct burner, selective catalytic reduction for both 0.023 lbm/MMBtu 8.29 lbm/hr			
Moran Power, Inc. GEC Rolls-Royce SK30 gas turbine with duct burner producing 49.9 MWe (cogeneration)	4/18/86 (A/C no. 3095001) A330-119-86 District Contact: Tom Goff Kern Co. APCD (now the San Joaquin Valley Unified APCD) (805) 862-5200		Steam injection for turbine, low-NOx burner for duct burner, selective catalytic reduction for both 0.023 lbm/MMBtu 8.29 lbm/hr			
Kern Energy Corp. GEC Rolls-Royce SK30 gas turbine with duct burner producing 49.9 MWe (cogeneration)	4/18/86 (A/C no. 3093001) A330-118-86 District Contact: Tom Goff Kern Co. APCD (now the San Joaquin Valley Unified APCD) (805) 862-5200		Steam injection for turbine, low-NOx burner for duct burner, selective catalytic reduction for both 0.023 lbm/MMBtu 8.29 lbm/hr			
Union Cogeneration	1/17/86	Oxidation catalyst	Water injection and selective		Oxidation catalyst	

Three Westinghouse C191 gas turbines each with 175 MMBtu/hr duct burners and producing 16.5 MWe per turbine	(A/C no. 30810) A330-114-86 District Contact: Steve Hill Bay Area AQMD (415) 771-6000	8 lbm/hr (equal to 7%)	catalytic reduction 25 ppmvd at 15% oxygen		39 lbm/hr (equal to 80%)	
OLS Energy-Camarillo 256 MMBtu/hr General Electric LM-2500 gas turbine producing 24.7 MWe (cogeneration)	1/30/86 (A/C no. 1267-2) A330-106-86 District Contact: Keith Duval Ventura Co. APCD (805) 654-2045 Kerby@vcapcd.org		Water injection and selective catalytic reduction 9 ppmvd at 15% oxygen			
University Cogeneration General Electric Frame 6 gas turbine with duct burner 38.7 MWe	12/6/85 (A/C no. 4133002) A330-101-85 District Contact: Tom Goff Kern County APCD (Now the San Joaquin Valley Unified APCD) (805) 862-5200		Water injection with a ratio of 0.9 lbm water: 1 lbm fuel and selective catalytic reduction 8.29 lbm/hr			
Energy Reserve Inc. 322.5 MMBtu/hr AEG Kams gas-fired turbine for topping cycle cogeneration	10/04/85 (A/C # 4121002) A330-96-85 District Contact: Tom Paxson San Joaquin Valley Unified APCD (former Kern County APCD) (805) 861-3682		Met-Pro Company selective catalytic reduction and water injection 0.024 lbm/MMBtu			
Shell California Production Inc. General Electric Model LM 2500-PE gas-fired turbine generator	10/4/85 (A/C # 4012175) A330-94-85 District Contact: Tom Paxson San Joaquin Valley Unified APCD (former Kern County APCD) (805) 861-3682		No Control 2.66 lbm/hr 10 ppmv @ 15% O ₂			Natural gas-fired only 3.92 lbm/hr

American Cogen Technology Two 220.4 MMBtu/hr GE LM-2500-33 gas turbines, unfired waste heat recovery boiler and one steam tubrine	9/16/85 (A/C # 3204 and 3277 A330-89-85 District Contact: Fred Thoits Monterey Bay Unified APCD (831) 647-9411		Water injection and selective catalytic reduction 17 ppmvd @ 15% O2 15.4 lb/hr		Combination of CO catalyst and process modification 550 lb/day two units combined	
Witco Chemical Corp. 363.5 MMBtu/hr GE LM-2500 cogenation gas turbine	9/12/85 (A/C # 2026051B A330-87-85 District Contact: Tom Paxson San Joaquin Valley Unified APCD (former Kern County APCD) (805) 861-3682	Good combustion practice and burner design 3.41 lbm/1000 gal 21.9 lbm/MMscf				
Chevron U.S.A 7-2.7 MW gas-fired Solar Centuar T-4001 gas trubine engines with water injection and fired heat recovery steam generators	7/22/85 (A/C # 4008823-829) A330-86-85 District Contact: Tom Paxson San Joaquin Valley Unified APCD (former Kern County APCD) (805) 861-3682				No control 1176 lbm/day 0.0955 lbm/MMBtu	
Sunlaw/USG II-Vernon 412.3 MMBtu/hr GE Frame 6 natural gas-fire, gas turbine cogeneration	6/25/85 (App. No.: 120625 A330-85-85 District Contact: Bob Pease South Coast AQMD (909) 396-2000 bpease@aqmd.gov		Hitachi, Mitsubishi, Johnson Matthey selective catalytic reduction adn steam injection 9 ppmvd @ 15% O2	Fuel sulfur content for operation on distillate fuel oil no. 2 0.05% sulfur content	General Electric manufacturers ganrantee con CO emissions 10 ppmvd @ 15% O2	
Sunlaw/Industries Park 2 (Santa Fe Springs) 412,300,000 Btu/hr natural gas-fire GE Frame 6 gas turbine cogeneration	6/28/85 (App. No.: 120624) A330-084-85 District Contact: Bob Pease South Coast AQMD (909) 396-2000		Hitachi, Mitsubishi, Johnson Matthey selective catalytic reduction adn steam injection 9 ppmvd @ 15% O2	Fuel sulfur content for operation on distillate fuel oil no. 2 0.05% sulfur content	General Electric manufacturers ganrantee con CO emissions 10 ppmvd @ 15% O2	

	bpease@aqmd.gov					
Willamette Industries 230 MMBtu/hr GE LM-2500-33 gas turbine cogeneration	4/26/85 (A/C # 0157-2 A330-076-85 District Contact: Keith Duval Ventura County APCD (805) 645-1440		Water or steam injection w/selective catalytic reduction//General Electric water, steam injection 15 ppmvd @ 15% O2			
Northern California Power Authority Two 25.8 MW each GE Frame 5 model PG-5361 combustion turbine/generator sets	4/1/85 (A/C # 85-02) A330-075-85 District Contact: Phillip Towle Mendocino County AQMD (707) 463-4354		Demineralized water injection 42 ppm @ 15% O2 (natural gas) 65 ppm @ 15% O2 (oil)			
Northern California Power Authority Two 25.8 MW (at peak-load) GE Frame 5, dual-fuel gas turbines power plant	9/5/84 (A/C # A/C-84-06) A330-065-85 District Contact: Kenneth Selover Placer County APCD (503) 889-7130		Water injection 42 ppmvd @ 15% O2 (natural gas) 62 ppmvd @ 15% O2 (fuel oil)	Fuel-oil sulfur content limit: 0.25% sulfur by wt.		
Frito-Lay Cogeneration 53 MMBtu/hr Allison/Coen gas-fired turbine engine with dual fuel-fired 40 MMBtu/hr duct burner serving boiler	11/9/84 (A/C # 3082014) A330-054-84 District Contact: Tom Paxon San Joaquin Valley APCD (former Kern County APCD) (805) 861-3682		Allison/Coen water/steam injection 13.7 lbm/hr turbine and duct burner	Low sulfur fuel (natural gas) with 0.25% S fuel oil as standby for duct burner only during N.G. curtailment 0.03 lbm/hr (turbine) 10.1 lbm/hr (duct burner(oil))		Complete combustion with low sulfur fuels, gaseous fuel except during curtailment 0.83 lbm/hr
IBM Cogeneration Project 49 MW United Technology Twin Pack gas turbine and 14.4 MW steam turbine generator system	12/21/84 (A/C # 30066) A330-052-84 District Contact: Victor Reyes Bay Area AQMD (415) 711-6000		Water injection and selective catalytic reduction 25 ppm @ 15% O2		Johnson Matthey CO catalyst 550 lb/day	

Simpson Cogeneration - Pomona 32.25 MW GE LM 5000 turbine- generator set (3.08 MMBtu/hr input with gas-fired heat recovery boiler)	1/6/84 (A/C # C-42507) A330-39-84 District Contact: Brain Yeh South Coast AQMD (909) 396-2000		Water injection 0.6 lbm water/lbm fuel for natural gas 0.645 lbm water/lbm fuel for diesel #2			
Proctor & Gamble Mfg. Co. 216.5 MMBtu/hr General Electric gas turbine	5/3/83 (A/C # 7575) A330-027-83 District Contact: Robert Knight Sacramento Metropolitan AQMD (916) 874-4800		Water injection 62 ppmv @ 15% O2 (natural gas) 70 ppmv @ 15% O2 (diesel #2)			
U.S. Borax and Chemical 1981 Cogeneration Project 550 MMBtu/hr Westinghouse gas turbine engine, electric generator, heat recovery steam generator, and coen duct burner	4/21/82 (A/C #1004077A081) A330-019-82 District Contact: Tom Paxson Kern County APCD (805) 861-3682		Water injection NOx control//low sulfur fuel for SO2 (.82 lbm H2O/lbm gas & .9 lbm H2O/lb oil) 268 lb/hr			

CAPCOA BACT Clearinghouse

Source Category - 89.2

Gas Turbines, > 23 MMBtu/hr heat input

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Gas Turbines - Emergency

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Bank of America Los Angeles Data Center 46 MMBtu/hr diesel-fired Detroit Diesel Allison model no. 501-KB5 gas turbine driving a 3,200 kw standby generator	6/24/94 (App. no. 272850) A330-610-94 District Contact: Lisa Mirisola South Coast AQMD (909) 396-2638		Fired on Re-refined "low-NOx" diesel fuel with 0.01% or less nitrogen content 163 ppmvd at 15% oxygen			

Imirisola@aqcmd.gov

CAPCOA BACT Clearinghouse

Source Category - 89.3

Gas Turbines - Emergency

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Glass Melting Furnaces - Container Manufacturing

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Owens-Illinois, Inc. 3.33 ton/hr Owens-Illinois glass melting furnace for container glass fired on natural gas with oil backup fuel	2/4/87 (App. no. 146696) A390-204-87 District Contact: Hamed Hassan South Coast AQMD (909) 396-2634 hhassan@aqmd.gov					Electrostatic precipitator 0.0226 gr/dscf on nat. gas; 0.0245 gr/dscf on fuel oil (estimated)
Latchford Glass Co. 45 MMBtu/hr, gas-fired Owens-Illinois glass melting furnace with a 270 ton/day container glass production capacity with oil backup fuel	2/3/87 (App. no. 149492) A390-182-87 District Contact: Hamed Hassan South Coast AQMD (909) 396-2634 hhassan@aqmd.gov		No control 5.5 lbm/ton of glass pulled	Wet scrubber and venturi scrubber 80% control (estimated)		Baghouse 81% control (estimated)

CAPCOA BACT Clearinghouse

Source Category - 90.1

Glass Melting Furnaces - Container Manufacturing

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Glass Melting Furnaces - Flat Glass

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Libbey Owens Ford 200 MMBtu/hr, natural gas-fired, flat-glass furnace with thermal De-NOx and 3R systems	5/6/96 (A/C no. N-477-10-2) A390-682-96 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909	No control 21.0 lbm/day			No control 1000 lbm/day	

PPG Industries Natural gas-fired float furnace capable of producing 575 tons glass per day	2/15/96					
	(A/C no. C-948-11-1) A390-680-96 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909		PPG supplemental burner system 240 lbm/day (Equivalent to 8.01 lbm/ton or 57.2% control)			Electrostatic precipitator and PPG supplemental burner system 19.18 lbm/hr (Equivalent to 98% control)

CAPCOA BACT Clearinghouse

Source Category - 90.3

Glass Melting Furnaces - Flat Glass

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Heaters - Refinery, <= 18 MMBtu/hr heat input

Revision: 3.0

Equipment Rating: Less than or equal to 18 MMBtu/hr heat input

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Southern California Gas Company 6.5 MMBtu/hr American Heater Company, model AHE-650, natural gas-fired hot oil heater used to regenerate liquid absorbent (triethylene glycol) by heating it to approximately 450 F. to remove absorbed water	8/17/99 (A/C No.: 347641) A310-944-00 District Contact: Henrique Nascimento South Coast AQMD (909) 396-2519 hnascimento@aqmd.gov		Power Flame model C5-G-30B low-NOx burner 20 ppmvd @ 3% O2		Power Flame model C5-G-30B low-NOx burner 50 ppmvd @ 3% O2	
Torch Operating Co. Lompoc Oil and Gas Plant Three 16 MMBtu/hr oil-emulsion heater treaters fired on LPG or propane with natural gas backup	12/24/96 (A/C no. 9522) A350-717-96 District Contact: Mike Goldman Santa Barbara Co. APCD (805) 961-8821 goldmanm@sbcapcd.org	Alzeta low-NOx burner 4 ppmv at 3% oxygen; 0.0017 lbm/MMBtu	Alzeta low-NOx burner 22 ppmv at 3% oxygen; 0.0266 lbm/MMBtu	Alzeta low-NOx burners 0.011 lbm/MMBtu	Alzeta low-NOx burners 25 ppmvd at 3% oxygen; 0.0184 lbm/MMBtu	
Unocal Corporation Pt. Pedernales Project Three 16 MMBtu/hr heater treaters	5/11/92 (A/C no. 8696) A310-547-92 District Contact: Michael Goldman Santa Barbara Co. APCD (805) 961-8821 goldmanm@sbcapcd.org		Azeta Pyrocore low-NOx ceramic-fiber radiant burners 22 ppmvd at 3% oxygen			

Macpherson Oil Co. 6 MMBtu/hr C.E. Natco heater treater fired on natural gas	11/22/91 (A/C no. 4126060) A350-498-91 District Contact: Tom Goff San Joaquin Valley Unified APCD (805) 862-5200		North American LoNOx burner with flue-gas recirculation 0.048 lbm/MMBtu			
Chevron-Gaviota Four 2.36 MMBtu/hr hot oil heaters	2/6/86 (A/C no. 5704) A310-129-86 District Contact: Bill Master Santa Barbara Co. APCD (805) 961-8800	Pipeline quality gas as fuel; proper burner operation 0.05 lbm/day total	Low-NOx burners, low excess air 1.42 lbm/hr total	Pipeline quality gas as fuel, 4 ppmv H2S max. 0.01 lbm/hr total	Pipeline quality gas as fuel; proper burner operation 0.57 lbm/hr total	Pipeline quality gas as fuel 0.09 lbm/day total

CAPCOA BACT Clearinghouse

Source Category - 94.1

Heaters - Refinery, <= 18 MMBtu/hr heat input

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Heaters - Refinery, > 18 MMBtu/hr through < 86.2 MMBtu/hr heat input

Revision: 3.0

Equipment Rating: > 18 MMBtu/hr heat input thru < 86.2 MMBtu/hr heat input

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
CENCO Refining Company 50 MMBtu/hr Tulsa Heaters Inc. natural gas-fired horizontal cabin coker charge heater for a delayed coking unit at the refinery	n.d. (A/C # 352869) A350-987-00 District Contact: Emmaunel E. Ruiviar South Coast AQMD (909) 396-2509 eruiviar@aqmd.gov		John Zink low-NOx burners, Technip USA selective catalytic reduction with ammonia injection of the flue gas 7 ppmvd @ 3% O2, 1-hr average		John Zink low-NOx burners 10 ppmvd @ 3% O2, 1-hr average	
San Joaquin Refining Company, Inc. Refinery process heaters rated between 8.4 and 47.1 MMBtu/hr	3/22/96 (A/C no. S-36-51-1) A310-681-96 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909	Natural gas and /or LPG firing 0.004 lbm/MMBtu	Natural gas and/or LPG firing with low-NOx burners and internal flue-gas recirculation 30 ppmvd at 3% oxygen (Equivalent to 0.036 lbm/MMBtu)			Natural gas and/or LPG firing 0.137 lbm/MMBtu
Fletcher Oil and Refining Company	7/3/91 (App. no. 170819)		Joy Technology selective catalytic reduction unit			

65 MMBtu/hr vacuum heater heating gas oil before vacuum distillation; unit is fired on refinery gas	A350-613-94 District Contact: Sawsan Andrawis South Coast AQMD (919) 396-2607 sandrawis@aqmd.gov		12 ppm			
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CAPCOA BACT Clearinghouse Source Category - 94.2 Heaters - Refinery, > 18 MMBtu/hr through < 86.2 MMBtu/hr heat input

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Heaters - Refinery, => 86.2 MMBtu/hr heat input

Revision: 3.0

Equipment Rating: Greater than or equal to 86.2 MMBtu/hr heat input

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
TOSCO Refining Co. 460 MMBtu/hr gas-fired Howe Baker Engineers Callidus model LE-CRG Lo-NOx hydrogen reforming furnace use to heat hydrocarbon feed streams to reform them to hydrogen and carbon dioxide.	7/24/94 (A/C No.: 290738) A310-931-00 District Contact: Ngoc Tran South Coast AQMD (909) 396-2606 ntran@aqmd.gov		Cormetech selective catalytic reduction with aqueous ammonia injection. Ammonia slip limited to 20 ppm at 3% O2. 7 ppmvd @ 3% O2	Limit on fuel sulfur content of 100 ppm as hydrogen sulfide 11.1 lbm/hr		

CAPCOA BACT Clearinghouse Source Category - 94.3 Heaters - Refinery, => 86.2 MMBtu/hr heat input

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Incinerators - Infectious Waste

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Kaiser Foundation Hospitals 1000 lbm/hr medical waste treatment by plasma pyrolysis with a minimum exhaust of 1800 degrees F	6/12/95 (App. no. 920877) A420-674-96 District Contact: Stan Romelczyk San Diego Co. APCD (619) 694-3323		Required basic equipment with plasma pyrolysis No limit (Estimated emissions of 31 lbm/day)			

CAPCOA BACT Clearinghouse Source Category - 95.1 Incinerators - Infectious Waste

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Incinerators - Non-Infectious Waste

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
ARCO Oil and Gas Co. 15 MMBtu/hr waste-gas incinerator in tertiary oil recovery operation	2/5/92 (A/C no. 4222041D thru-042D) A350-559-92 District Contact: Tom Goff/Lance Erickson San Joaquin Valley Unified APCD (805) 862-5200					Sulfur scrubber and pre-incineration sulfur removal 0.04 gr/dscf at 0% oxygen (Estimated control efficiency of 50%)

CAPCOA BACT Clearinghouse

Source Category - 95.3

Incinerators - Non-Infectious Waste

BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE

Equipment or Process: I.C. Engines - Landfill or Digester Gas Fired

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Minnesota Methane Tajiguas Corporation 4314 bhp Caterpillar model 3616 landfill gas-fired IC engine driving 3 MW electric generator with exhaust routed through afterburner/standby flare	1/9/98 (A/C no. 9788) A330-846-98 District Contact: Steve Sterner Santa Barbara County APCD (805) 961-8886 sterners@sbcapcd.org	Lean-burn IC engine, equipped with spark/torch ignition controls, fuel/air ratio controls and an intake air turbocharger and intercooler. 0.24 g/bhp-hr (equivalent to 20 ppmvd @ 3% O2 as Hexane)	Lean-burn IC engine, equipped with spark/torch ignition controls, fuel/air ratio controls and an intake air turbocharger and intercooler. 92 ppmvd at 3% oxygen 0.59 g/bhp-hr (Equivalent to 92 ppmvd at 3% oxygen)			Fuel pretreatment system to remove gas condensate and filter gas of particulates 0.34 g/bhp-hr (equivalent to 0.053 g/dscf & 0.073 lb/MMbtu)
Monterey Bay Regional Waste Management District 1274 hp Jenbacher model JGS 320 GS-LL IC engine fired on landfill gas	11/4/96 (A/C no. 8521 and 8522) A330-760-97 District Contact: Jerry Steele Monterey Bay Unified APCD		Lean-burn combustion technology 1.2 g/bhp-hr 213.45 lbm/day for three engines			

	(408) 647-9411					
<p>City of Stockton Municipal Utilities Dept. Regional Waste Water Control Facility</p> <p>2760 bhp Waukesha model 12V-AT27GL IC engine fired on natural gas, digester gas, or a combination thereof</p>	<p>11/22/96</p> <p>(A/C no. N-811-15-0)</p> <p>A330-725-96</p> <p>District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909</p>	<p>Lean-burn engine with a precombustion chamber</p> <p>0.75 g/bhp-hr 109.5 lbm/day</p>	<p>Lean-burn engine with a precombustion chamber</p> <p>1.25 g/bhp-hr 182.5 lbm/day</p>	<p>Chemical addition to the digester sludge to reduce the influent fuel hydrogen sulfide content by 90%</p> <p>0.1 g/bhp-hr 13.9 lbm/day (Hydrogen sulfide emissions shall be no more than 120 ppmv in digester gas)</p>	<p>Lean-burn engine with a precombustion chamber</p> <p>2 g/bhp-hr 292.1 lbm/day</p>	<p>Digester gas or natural gas fuel or any blend of digester gas and natural gas</p> <p>0.1 g/bhp-hr 14.6 lbm/day</p>
<p>Napa Sanitation District</p> <p>913 hp Waukesha model 5900GL IC engine fired on digester gas with supplementary natural gas</p>	<p>3/26/93</p> <p>(A/C no. 9006)</p> <p>A330-579-93</p> <p>District Contact: Ted Hull Bay Area AQMD (415) 749-4919</p>		<p>Lean-burn combustion control</p> <p>1.25 g/bhp-hr</p>	<p>Addition of iron salts to the digester sludge to reduce H₂S concentrations of digester gas to less than 300 ppmv</p> <p>0.30 g/bhp-hr</p>		
<p>Pacific Energy Otay Mesa Landfill</p> <p>2650 hp Cooper- Superior model 16SGTA lean-burn engine-generator set with 1850 KW capacity</p>	<p>2/25/92</p> <p>(A/C no. 891039)</p> <p>A330-545-92</p> <p>District Contact: Bob Batten San Diego Co. APCD (619) 694-3316</p>		<p>Prechamber combustion and automatic air-to-fuel ratio controller</p> <p>0.8 g/bhp-hr 4.7 lbm/hr</p>			
<p>City of Ventura Wastewater Treatment Plant</p> <p>773 bhp Waukesha F3521GL lean-burn reciprocating engine fired on digester or natural gas and producing 550 KW</p>	<p>12/31/86</p> <p>(A/C no. 1377-1)</p> <p>A330-164-87</p> <p>District Contact: Keith Duval Ventura Co. APCD (805) 654-2845 Kerby@vcapcd.org</p>		<p>Engine design</p> <p>2 g/bhp-hr</p>			
<p>Poppy Ridge Partners</p> <p>Two 865 hp Waukesha reciprocating engines fired on digester gas (cogeneration)</p>	<p>9/16/86</p> <p>(A/C nos. 8501 thru 8504)</p> <p>A330-154-86</p> <p>District Contact:</p>		<p>Pre-stratified charge emission control system</p> <p>2.0 g/bhp-hr</p>			

	Aleta Kennard Sacramento Metropolitan AQMD (916) 366-2107					
SF Southeast Treatment Plant 7300 hp reciprocating engine fired on sewage sludge gas (cogeneration)	5/86 (A/C no. 30456) A330-150-86 District Contact: Steve Hill Bay Area AQMD (415) 771-6000		Clean-burn engine 2.0 g/bhp-hr			
Genstar Gas Recovery Systems Two 2650 hp Cooper- Superior lean burn IC engines fired on landfill gas	12/2/85 (A/C no. 30970) A330-109-86 District Contact: Craig Ullery Bay Area AQMD (415) 771-6000		Stratified charge combustion 1.5 g/hp-hr			
Genstar Gas Recovery Systems Two 1100 hp Cooper- Superior lean burn IC engines fired on landfill gas	8/29/85 (A/C no. 30893) A330-108-86 District Contact: Craig Ullery Bay Area AQMD (415) 771-6000		Stratified charge combustion 1.5 g/hp-hr			
Pacific Lighting Energy Systems 2650 hp Cooper model 165GTA superior landfill gas-fired clean burn IC engine	3/1/85 (A/C # 30336) A/C # 330-075-85 District Contact: Craig Ullery Bay Area AQMD (415) 771-6000		Cooper pre-chamber ignition lean burn or stratified charged turbo- charged engine 1.5g/hp-hr			
Pacific Energy Resources, Inc. 2650 hp Cooper Energy Service Superior model 16 SGTA land-fill gas-fired clean burn internal combustion engine	11/14/84 (A/C # 0083001) A330-057-84 District Contact: Tuan Ngo San Joaquin Valley Unified APCD (former Kern County APCD) (805) 861-3682		Clean burn operating mode: two combustion chambers: pre-ignition chamber, fuel rich and main combustion chamber 8.25 lb/hr 1.5 g/bhp-hr			

Pacific Lighting Energy Systems	1/28/85 (A/C # 3158) A330-049-84 District Contact: Fred Thoits Monterey Bay Unified APCD (831) 647-9411		Fairbanks-Morse clean burn engine design 1.5 gm/hp-hr 6.25 lb/hr			
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CAPCOA BACT Clearinghouse

Source Category - 96.2

I.C. Engines - Landfill or Digester Gas Fired

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: I.C. Engines - Spark Ignition, Natural Gas

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Disneyland Resort 1334 hp Cummins model 800 GTA 500 G3 natural gas-fired spark- ignition engine use to drive a standby generator	12/7/99 (A/C # 360419) A330-971-00 District Contact: Roy Olivares South Coast AQMD (909) 396-2208 rolivares@amd.gov	Johnson Matthey 3-way catalytic converter and air/fuel ratio controller 1.5 g/bhp-hr	Johnson Matthey 3-way catalytic converter and air/fuel ratio controller 1.5 g/bhp-hr		Johnson Matthey 3-way catalytic converter and air/fuel ratio controller 2.0 g/bhp-hr	
Kaiser Permanente Health Plan, Inc. 171 bhp four Tecodrive model 7400LE natural-gas spark- ignition engines use to drive two compressors/chillers that will provide cooling for the facility	12/14/99 (A/C No.: 362406) A310-963-00 District Contact: Roy Olivares South Cost AQMD (909) 396-2208 rolivares@aqmd.gov	Miratech model MN-11T-04F catalytic converter and Tecodrive air/fuel ratio controller 0.15 g/bhp-hr	Miratech model MN-11T-04F catalytic converter and Tecodrive air/fuel ratio controller 0.15 g/bhp-hr		Miratech model MN-11T-04F catalytic converter and Tecodrive air/fuel ratio controller 0.60 g/bhp-hr	
Crestline Village Water District 93 bhp Ford model LSG875 natural gas-fired spark-ignition engine use to drive an electrical generator. Unit is used for backup generation, allowed to operate more than 200 hr/yr.	11/16/99 (A/C No.: 361525) A330-937-00 District Contact: Roy Olivares South Coast AQMD (909) 396-2208 roliveras@aqmd.gov	Miratech 3-way catalytic converter and air/fuel ratio controller 0.15 g/bhp-hr	Miratech 3-way catalytic converter and air/fuel ratio controller 0.15 g/bhp-hr		Miratech 3-way catalytic converter and air/fuel ratio controller 0.6 g/bhp-hr	

Orange County Flood Control District 750 bhp Waukesha model L5790G spark-ignition engine used to drive an emergency flood control pump	n.d. (A/C No.: 359876) A340-916-00 District Contact: Roy Olivare South Coast AQMD (909) 396-2208 rolivares@aqmd.gov	Miratech 3-way catalytic converter and air/fuel ratio controller 0.15 g/bhp-hr	Miratech 3-way catalytic converter and air/fuel ratio controller 0.15 g/bhp-hr		Miratech 3-way catalytic converter and air/fuel ratio controller 0.6 g/bhp-hr	
S B Linden, LLC 3,130 bhp Waukesha model 12V-AT27GL lean-burn spark ignition, natural gas-fired internal combustion engine use to drive a pump that conveys liquid petroleum products.	12/13/96 (A/C No.: 1-96-4271) A330-909-99 Contact: Bureau of Air Quality of Engineering New Jersey Department of Environmental Protection (609) 633-1110	Siemens Westinghouse, oxidation catalyst bed 0.331 lbs/hr 58 ppm	Siemens Westinghouse, SCR catalyst bed and ammonia injection 1.89 lbs/hr 50 ppm		Siemens Westinghouse, oxidation catalyst bed 1.75 lbs/hr 76 ppm	
Sycom Enterprises 3,130 bhp Waukesha model 12V-AT27GL lean-burn spark ignition, natural gas-fired internal combustion engine use to drive a pump that conveys liquid petroleum products.	12/13/96 (A/C No.: 1-96-4371) A330-908-99 Contact: Bureau of Air Quality of Engineering New Jersey Department of Environmental Protection (609) 633-1110	Siemens Westinghouse, oxidation catalyst bed 0.76 lbs/hr 10 ppm	Siemens Westinghouse, SCR catalyst bed and ammonia injection 1.89 lbs/hr 50 ppm		Siemens Westinghouse, oxidation catalyst bed 1.75 lbs/hr 76 ppm	
San Diego Metro Pumping Station #2 Two 2,400 bhp lean burn natural gas fired Caterpillar model G3612 SIJA IC engines use for operating wastewater pumps. Combined operation of both engines limited to 15,000 hs/yr.	12/6/94 (A/C Nos. 891221, 891222) A330-885-99 District Contact: Gary Smith San Diego APCD (619) 694-3587		Lean burn with natural gas fuel 0.8 g/bhp-hr			
Saba Petroleum, Inc./Bell Compressor Plant The engine is turbo-charged and inter-cooled and is configured in a rich	10/12/98 (A/C no. 9975) A330-857-98 District Contact: Michael Goldman	3-way Catalytic Converter and Electric Air/Fuel Ratio Controller 0.30 g/bhp-hr 0.0766 lb/MMBtu/hr	3-way Catalytic Converter and Electric Air/Fuel Ratio Controller 0.15 g/bhp-hr 10 ppmvd @ 15% O2	Filed gas Total sulfur content not to exceed 239 ppmv Voluntary	3-way Catalytic Converter and Electric Air/Fuel Ratio Controller 0.75 g/bhp-hr 83 ppmvd @ 15% O2	

burn mode. The compressor is rated at 3.073 MMSCFD.	Santa Barbara County APCD (805) 961-8821 goldmanm@sbcapcd.org	Voluntary information on controls. BACT not required.		information on control. BACT not required	Voluntary information on controls. BACT not required.	
G.E.N.Y. Operations Company 145 bhp Caterpillar model 333 natural gas-fired rich burn IC engine limited to 1230 scf/hr fuel input and 1000 hr/yr	11/3/97 (A/C no. C-1685-29-0) A330-828-98 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909	Positive Crankcase Ventilation No limit (Equivalent to 2.0 g/bhp-hr)	No control No limit (Equivalent to 10 g/bhp-hr)			
Kaiser Permanente Medical Center 160 bhp John Deere model 6076AFN30 natural gas-fueled clean-burn, IC engine limited to 1070 scf/hr gas usage	9/2/97 (A/C no. C-709-13-0) A330-783-97 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909	Natural gas firing 150 @ 15% O2 (equivalent to 0.78 g/bhp-hr)	Natural gas firing 55 ppmv @ 15% (equivalent to 0.72 g/bhp-hr)		Natural gas firing 148 ppmv @ 15% O2 (equivalent to 1.24 g/bhp-hr)	
Toys "R" Us 82 bhp Ford model no. LGC-649 natural-gas fired, rich-burn emergency IC engine driving a Kohler 39 KW electrical generator. Operation limited to emergency use and 200 hr/yr for testing and maintenance	11/27/96 (A/C no. C-2942-1-0) A330-763-97 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909		No control No limit (Expected emission level of 14.56 g/bhp-hr)		No control No limit (Expected emission level of 0.78 g/bhp-hr)	
City of Clovis 365 bhp, gas-fired Caterpillar model no. G3406TA rich-burn IC engine	11/8/96 (A/C no. C-2958-1-0) A330-762-97 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909	Houston Industrial Silencing model DN/S-3656PH three-way catalyst and natural-gas firing 1.3 lbm/day (Equivalent to 0.068 g/bhp-hr or 30 ppmvd at 15% oxygen)	Houston Industrial Silencing model DN/S-3656PH three-way catalyst, oxygen controller, and natural-gas firing 0.33 g/bhp-hr (Equivalent to 25 ppmvd at 15% oxygen)	Natural gas firing 0.04 lbm/day (Equivalent to 0.60 lbm/MMscf)	Houston Industrial Silencing model DN/S-3656PH three-way catalyst, positive crankcase ventilation, oxygen controller, and natural-gas firing 10.8 lbm/day (Equivalent to 2.0 g/bhp-hr or 70 ppmvd at 15% oxygen)	Natural gas firing and positive crankcase ventilation 4.4 lbm/day (Equivalent to 0.23 g/bhp-hr)

Vintage Petroleum Company Clark Avenue Oil and Gas Production Facility Thirteen 117 to 186 bhp, natural-gas Waukesha engines used to power oil wellhead pumping units and produced water pumps. Natural gas heat content from 900 to 1200 btu/scf.	2/4/97 (A/C no. 9682) A330-759-97 District Contact: Steve Sterner Santa Barbara Co. APCD (805) 961-8886 sterners@sbcapcd.org	Johnson-Matthey model MX-10 non-selective catalyst; Blackhawk Services fuel/air ratio controller; and positive crankcase ventilation 73 ppmv at 15% oxygen			Johnson-Matthey model MX-10 non-selective catalyst; Blackhawk Services fuel/air ratio controller; and positive crankcase ventilation 215 ppmv at 15% oxygen	
Gill's Onions Six 130 hp rich-burn, natural gas-fired, Caterpillar model 3306, TA internal combustion engines	5/18/95 (A/C no. 7018-110) A330-645-95 District Contact: Kerby Zozula Ventura County APCD (805) 645-1421 Kerby@vcapcd.org	Houston Industrial model DN/S 1004PC DeNOx Silencer three-way catalyst 103 ppmvd at 15% oxygen (Equivalent to 0.60 g/bhp-hr)	Houston Industrial model DN/S 1004PC DeNOx Silencer three-way catalyst 9 ppmvd at 15% oxygen (Equivalent to 0.15 g/bhp-hr)			
Doubletree Hotel (Replace Cogeneration Engine) Three 108 hp each, Ford model 460, rich burn, nat. gas-fired IC cogen. engines each equipped w/ a Johnson Matthey Dura NOx model 200 NSCR unit, zeolite oxygen sensor, & automatic air/fuel ratio control	8/11/94 (A/C # 0294-120) A330-625-94 District Contact: Kerby Zozula Ventura County APCD (805) 645-1421 Kerby@vcapcd.org	Johnson Matthey Dura NOx model 200 non selective catalytic converter equipped with an oxygen sensor and automatic air/fuel ratio controller 33 ppmvd @ 15% O2 (as CH4) 0.0467 lbs/hr per engine	Johnson Matthey Dura NOx model 200 non selective catalytic converter equipped with an oxygen sensor and automatic air/fuel ratio controller 9 ppmvd @ 15% O2 0.0367 lbs/hr per engine			
Western Municipal Water District 525 hp, rich-burn Caterpillar model no. 3512 reciprocating engine fired on natural gas; LPG firing allowed during natural gas curtailment	6/1/91 (App. no. 223469) A330-453-90 District Contact: Permit Services South Coast AQMD (909) 396-3385		Nonselective catalytic reduction 1.5 g/bhp/hr 23 lbm/day			
Western Municipal Water District 525 hp, rich-burn Caterpillar model no.	6/1/91 (App. no. 223467) A330-452-90		Nonselective catalytic reduction 1.5 g/bhp/hr			

3512 reciprocating engine fired on natural gas; LPG firing allowed during natural gas curtailment	District Contact: Permit Services South Coast AQMD (909) 396-3385		23 lbm/day			
Western Municipal Water District 525 hp, rich-burn Caterpillar model no. 3512 reciprocating engine fired on natural gas; LPG firing allowed during natural gas curtailment	6/1/91 (App. no. 223464) A330-451-90 District Contact: Permit Services South Coast AQMD (909) 396-3385		Nonselective catalytic reduction 1.5 g/bhp/hr 23 lbm/day			
Exxon San Joaquin Production Co. Compressors driven by four 525 hp, naturally aspirated, gas-fired Caterpillar Model No. G-398 reciprocating engines at a natural gas processing plant	4/25/88 (A/C nos. 2066012 thru 2066015) A350-281-88 District Contact: Tom Goff Kern Co. APCD (now the San Joaquin Valley Unified APCD) (805) 862-5200		Three-way non-selective catalyst with air fuel ratio controller 1.0 g/bhp-hr 27.84 lbm/day/unit			
San Diego Marriott Hotel-Tower 1 1150 hp Caterpillar low-emission Model 3516TA lean-burn gas engine with 800 KW generator and waste-heat recovery (cogeneration)	3/9/87 (A/C no. 850810) A330-279-88 District Contact: Bob Batten San Diego Co. APCD (619) 694-3316		Lean-burn technology 1.4 g/bhp-hr 280 ppmvd at 3% oxygen			
California Dept. of Corrections, Corcoran Prison Two gas-fired, lean-burn Alco Model 12V-251-SI reciprocating engine-generator sets with total rated input of 31.46 MMBtu/hr and output of 3 MW and 540,000 lbm/hr hot water (cogeneration)	12/18/87 (A/C nos. 7815C and 7815D) A330-276-88 District Contact: George Heinen Kings Co. APCD (now the San Joaquin Valley Unified APCD) (559) 230-5909		Lean-burn torch ignition system incorporated in engine design 0.75 g/bhp-hr 0.22 lbm/MMBtu			
Shell California Production, Inc. 600 hp gas-fired Clark model HRA-6 IC	11/14/84 (App. no. 147853) A330-208-87		Selective catalytic reduction 100 lbm/day			

lean-burn engine	District Contact: Permit Services South Coast AQMD (909) 396-3385		70% control			
Tri County Sun Energy Sheraton Hotel 195 bhp Caterpillar Model No. G3306-TA reciprocating engine producing 130 KW	8/7/86 (A/C no. 1369-1) A330-165-87 District Contact: Keith Duval Ventura Co. APCD (805) 654-2845 Kerby@vcapcd.org		Nonselective catalytic reduction 50 ppmvd at 15% oxygen			
Shell California Production, Inc. 225 hp Caterpillar model no. G342 reciprocating engine used as a vapor recovery compressor	12/2/85 (A/C no. 0041-6) A330-107-86 District Contact: Keith Duval Ventura Co. APCD (805) 654-2045 Kerby@vcapcd.org		Nonselective catalytic reduction Least restrictive of 90% control, 50 ppmvd or 0.805 g/hp-hr			
PG&E - Los Medanos Comprssor 4130 hp Cooper Energy Systems natural gas-fired clean burn engine	1/8/81 (A/C # 27512) A330-053-84 District Contact: Bob Nishimura Bay Area AQMD (415) 771-6000					
Soledad Cogeneration Association 2133 bhp natural gas-fired internal combustion engine (cogeneration)	3/5/84 (A/C # 3043 and 3044) A330-048-84 District Contact: B. Nishimura Monterey Bay Unified APCD (831) 647-9411		Rily Beaird Maximum model 16MCSO-261 catalytic converter 1 gm/bhp-hr 4.7 lb/hr			
Shell California Production Inc. - Kern Ridge 168 hp Waukesha natural-gas fired compressor engine	5/29/84 (A/C # 2028022 and 2028023) A330-041-84 District Contact: Tuan Ngo San Joaquin Valley		Riley-Beaird maxium MCSR rich burn catalytic converter 1.09 gm/bhp-hr			

	Unified APCD (former Kern County APCD) (805) 861-3682					
Argo Petroleum 200 hp Waukesha model F-1905-GU natural gas-fired lean burn internal combustion engine	9/30/83 (A/C # 0380) A330-031-83 District Contact: Keith Duval Ventura County APCD (805) 645-1440		Emissions Control Systems model 23N catalytic reduction for NOx 50 ppm @ 15% O2			
Santa Fe Energy, Silverthread 180 hp Ajax model DPC 180 single cylinder natural gas-fired lean burn gas compressor	12/2/82 (A/C # 0951) A330-030-82 District Contact: Keith Duval Ventura County APCD (805) 645-1440		Compressor design for NOx control 125 ppmvd @ 15% O2			
Warren Petroleum (Natural Gas Processing Orern) 2133 hp Waukesha natural gas-fired internal combustion engine	10/19/83 (A/C # 2023008, 2023009, and 2023016) A330-020-83 District Contact: Tuan Ngo San Joaquin Valley Unified APCD (former Kern County APCD) (805) 861-3682		Johnson Metthey, Inc. JMI "rich burn" catalytic converter 1.5 gr/bhp-hr			
Paul Masson Vineyards Cogeneration 1200 rpm, 526 hp natural gas-fired Waukesha model F2900G reciprocating engine, 300 KW	3/27/81 (A/C # 27796) A330-016-81 District Contact: Doug Wolf Bay Area AQMD (415) 771-6000		Emissions Control Systems, Inc. TDRVEX supported model 43N catalytic converter 30 ppm			

CAPCOA BACT Clearinghouse

Source Category - 96.3

I.C. Engines - Spark Ignition, Natural Gas

BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE

Equipment or Process: I.C. Engines - Spark Ignition, Alternative Fuels

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name &	A/C Issue Date &	BACT AND CORRESPONDING EMISSION CONTROL LEVELS
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Description	ARB File No.	VOC/HC	NOx	SOx	CO	PM/PM10
<p>Disneyland Resort</p> <p>193 hp Ford model LSG-875R-6003-C gasoline-fired spark-ignition engine use to drive an emergency fire pump. Limited to 200 hr/yr of operation.</p>	<p>10/21/99</p> <p>(P/O No.: F22234 (no authority to construct issued - exempt standby unit))</p> <p>A330-929-00</p> <p>District Contact: Roy Olvares South Coast AQMD (909) 396-2208 rolivares@aqmd.gov</p>	<p>Two banks of Carsound Exhaust Systems, Inc. 3-way catalytic converters (model no. 298035) and an air/fuel ratio controller (model KAT2000)</p> <p>0.15 g/bhp-hr</p>	<p>Two banks of Carsound Exhaust Systems, Inc. 3-way catalytic converters (model no. 298035) and an air/fuel ratio controller (model KAT2000)</p> <p>0.15 g/bhp-hr</p>		<p>Two banks of Carsound Exhaust Systems, Inc. 3-way catalytic converters (model no. 298035) and an air/fuel ratio controller (model KAT2000)</p> <p>0.6 g/bhp-hr</p>	
<p>Bakersfield Cellular Telephone Co.</p> <p>72 hp Generac model 94A01244-s propane-fired emergency IC engine driving electrical generator</p>	<p>7/20/95</p> <p>(A/C no. S-2836-1-0)</p> <p>A330-663-95</p> <p>District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909</p>		<p>Three-way catalyst</p> <p>No limit (Equivalent to 80% control efficiency)</p>			
<p>Western Environmental Engineers Company</p> <p>Petroleum tank degassing operation using two 175 hp Ford LSG-875 gas-fired IC engines fired on tank vapors with LPG auxiliary fuel</p>	<p>5/2/95</p> <p>(A/C no. S-2482-1-0)</p> <p>A350-642-95</p> <p>District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909</p>	<p>Carsound two-stage, three-way catalyst and air fuel monitoring</p> <p>100 ppmv at 15% oxygen (Equivalent to 95% control)</p>	<p>Carsound two-stage, three-way catalyst an air-fuel monitoring</p> <p>50 ppmv at 15% oxygen (Equivalent to 90% control)</p>	<p>LPG as auxiliary fuel to tank vapors</p> <p>0.08 lbm/MMBtu</p>	<p>Carsound two-stage, three-way catalyst and air-fuel monitoring</p> <p>150 ppmv at 15% oxygen</p>	<p>LPG as auxiliary fuel to tank vapors</p> <p>0.1 lbm/MMBtu</p>
<p>Kenneth Harper and Associates</p> <p>Propane-fired, Ford model DGU-90 6-cylinder, 300 cid IC engine used in underground tank degassing; unit is to be operated 8 to 10 hours/day</p>	<p>5/10/91</p> <p>(App. no. 228999)</p> <p>A430-557-92</p> <p>District Contact: John Yee South Coast AQMD (909) 396-2531</p>	<p>Oxidation catalyst</p> <p>98.6% control efficiency</p>				
<p>Shell Pipeline Corporation</p> <p>82 hp Cummins-Oman 45EM propane-fired IC engine driving emergency generator</p>	<p>11/15/91</p> <p>(A/C no. 4048020)</p> <p>A330-501-91</p> <p>District Contact: Tom Goff/Glenn</p>	<p>Three-way catalyst and blowby gas gas recirculation</p> <p>10% control efficiency</p>	<p>Three-way catalyst</p> <p>60% control efficiency</p>	<p>Low sulfur fuel</p> <p>No limit</p>	<p>Three-way catalyst</p> <p>96% control efficiency</p>	

	Stevens San Joaquin Valley Unified APCD (805) 862-5200					
De La Guerra Power, Inc. 380 hp General Motors 500 cubic inch IC engine fired on scrubbed casing gas limited to 110 hp output	11/12/91 (A/C no. 0249003) A330-490-91 District Contact: Tom Goff/Glenn Stevens San Joaquin Valley Unified APCD (805) 862-5200	Three-way catalyst and crankcase blowby recirculation 70% control efficiency	Three-way catalyst 90% control efficiency		Three-way catalyst 70% control efficiency	
Richmond Exploration Corporation 200 hp Waukesha propane fired engine used for nitrogen gas injection in tertiary oil recovery and using natural gas backup fuel	10/24/91 (A/C no. 4232005) A330-486-91 District Contact: Tom Goff/Lynard Scandura San Joaquin Valley Unified APCD (805) 862-5200	Houston Industrial Silencing three-way catalyst 0.44 lbm/hr	Houston Industrial Silencing three-way catalyst 0.66 lbm/hr 90 ppmvd at 15% oxygen			
American Cogenics of California, Inc. (El Roblar Ranch) Two 700 hp Caterpillar G398TAHC reciprocating engines each with Maxim/12 silencer and 464 kilowatt generators; engines use rich burn combustion of field gas limited to 300 ppm hydrogen sulfide	7/17/90 (A/C no. 8016) A330-440-90 District Contact: Sanjib Mukherji Santa Barbara Co. APCD (805) 961-8800		Nonselective catalytic reduction 50 ppmvd at 15% oxygen; 92% minimum 1.245 lbm/hr/unit (Equivalent to 0.79 g/bhp-hr)			
Santa Cruz Cogeneration Association 3656 bhp TransAmerican Delaval dual-fuel internal combustion engine fired on 96% natural gas and 4% diesel (cogeneration)	7/23/84 (A/C # 3048) A330-047-84 District Contact: Fred Thoits Monterey Bay Unified APCD (831) 647-9411		Engine design resulting in stratified charge; fuel composition restriction except when emergency fuel is fired 3.7 gm/bhp-hr 29.8 lbm/hr			

CAPCOA BACT Clearinghouse

Source Category - 96.4

I.C. Engines - Spark Ignition, Alternative Fuels

BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE

Equipment or Process: I.C. Engines - Compression Ignition, Emergency

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
City of Corona 2155 bhp-hr Caterpillar model 3512B SCAC diesel-fired compression ignition engine use to drive a stand-by electrical generator limited to 200 hr/yr of operation. Diesel fuel sulfur content limited to less than 0.05% S.	2/1/00 (P/O # F24125) A330-993-00 District Contact: Roy Olivares South Coast AQMD (909) 396-2208 rolivares@aqmd.gov	No Control 1.0 g/bhp-hr	Turbocharger and aftercooler 6.9 g/bhp-hr		No control 8.5 g/bhp-hr	No control 0.38 g/bhp-hr
Homegrocer.com 883 bhp Mitsubishi model S6R-PTA compression ignition engine use to drive a stand-by electrical generator limited to 200 hr/yr of operation. Diesel fuel sulfur content limited to less than 0.05% S.	1/18/00 (A/C # 363918) A330-992-00 District Contact: Roy Olivares South Coast AQMD (909) 396-2208 rolivares@aqmd.gov	No control 1.0 g/bhp-hr	Turbocharger and aftercooler 6.9 g/bhp-hr		No control 8.5 g/bhp-hr	No control 0.38 g/bhp-hr
Homegrocer.com 1480 bhp-hr Caterpillar model 3508 SCAC diesel-fired compression ignition engine use to drive a stand-by electrical generator limited to 200 hr/yr of operation. Diesel fuel sulfur content limited to less than 0.05% S.	2/22/00 (A/C # 364327) A330-991-00 District Contact: Thai Tran South Coast AQMD (909) 396-2562 ttran@aqmd.gov	No control 1.0 g/bhp-hr	Turbocharger and aftercooler 6.9 g/bhp-hr		No control 8.5 g/bhp-hr	No control 0.38 g/bhp-hr
Cucamonga County Water District Portable 890 bhp Caterpillar model 3412 DISTA diesel-fired compression ignition engine driving a stand-by electrical generator limited to 200 hr/yr of operation. Fuel sulfur limited to 0.05%.	3/30/00 (A/C # 365785) A330-990-00 District Contact: Roy Olivares South Coast AQMD (909) 396-2208 rolivares@aqmd.gov	No control 1.0 g/bhp-hr	Turbocharger and aftercooler 6.9 g/bhp-hr		No control 8.5 g/bhp-hr	No control 0.38 g/bhp-hr
Walt Disney Pictures and Televison 1109 bhp Caterpillar model 3412 DISTA diesel-fired compression	3/28/00 (A/C # 366370) A330-989-00	No control 1.0 g/bhp-hr	Turbocharger and aftercooler 6.9 g/bhp-hr		No control 8.5 g/bhp-hr	No control 0.38 g/bhp-hr

ignition engine driving a standby-electrical generator limited to 200 hr/yr of operation. Diesel fuel sulfur content limited to less than 0.05% S.	District Contact: Roy Olivares South Coast AQMD (909) 396-2208 rolivares@aqmd.gov					
La Paloma Generating Co. LLC Four 475 bhp (each) emergency Caterpillar model 3406C diesel-fired IC engine generator sets will be required to provide electrical power to run the lubricating oil pumps and to slowly rotate each GTE in a power outage	5/26/99 (A/C # S-3412-8-0 thru 11-0) A330-972-00 District Contact: Leonard Scandura San Joaquin Valley Unified APCD (661) 326-6900	Positive crankcase ventilation No limit	No control No limit	Low-sulfur diesel fuel (0.05% by weight or less) No limit	No control No limit	Low-sulfur diesel fuel (0.05% by weight or less) and positive crankcase ventilation No limit
US Government Naval Air Station North Island 100 bhp John Deere model 404STF diesel-fired compression-ignition engine use to drive a standby electrical generator limited to 200 hr/yr of operation.	10/7/99 (A/C No.: 359675) A330-933-00 District Contact: Roy Olivares South Coast AQMD (909) 396-2208 rolivares@aqmd.gov	No control 1.0 g/bhp-hr	Turbocharger and 4-degree timing retard 6.9 g/bhp-hr		No control 8.5 g/bhp-hr	0.05% fuel sulfur content 0.38 g/bhp-hr
Running Springs Water District 86 bhp Caterpillar model 3054 DIT diesel-fired compression-ignition engine use to drive a portable standby electrical generator limited to 200 hr/yr of operation.	n.d. (Application No.: 360224) A330-932-00 District Contact: Roy Olivares South Coast AQMD (909) 396-2208 rolivares@aqmd.gov	No control 1.0 g/bhp-hr	Turbocharger and 4-degree timing retard 6.9 g/bhp-hr		No control 8.5 g/bhp-hr	No control 0.38 g/bhp-hr
Santa Clarita Valley School Food Services 480 hp Cummins model NTA855-G3 diesel-fired compression-ignition engine use to drive a standby electrical generator. Limited to 200 hr/yr of operation.	n.d. (A/C No.: 359619) A330-930-00 District Contact: Roy Olivares South Coast AQMD (909) 396-2208 rolivares@aqmd.gov	No control 1.0 g/bhp-hr	Turbocharger and aftercooler 6.9 g/bhp-hr		No control 8.5 g/bhp-hr	No control 0.38 g/bhp-hr
Homegrocer.com 883 bhp-hr Mitsubishi model S6R-PTA diesel-fired compression	1/18/00 (A/C # 363918) A330-991-00	Turbocharger and aftercooler 1.0 g/bhp-hr	Turbocharger and aftercooler 6.9 g/bhp-hr		Turbocharger and aftercooler 8.5 g/bhp-hr	Turbocharger and aftercooler 0.38 g/bhp-hr

engine use to drive a stand-by electrical generator	District Contact: Roy Olivares South Coast AQMD (909) 396-2208 rolivares@aqmd.gov					
Cummins Cal Pacific, Inc. 68 bhp Cummins model 4B3.9-G2, naturally aspirated, diesel-fired compression ignition engine used to drive a 35-40 kW electrical generator. The generator supplies power during a utility power outage.	8/18/99 (A/C No.: 356816) A330-922-00 District Contact: Raman Patel South Coast AQMD (909) 396-2466 rpatel@aqmd.gov	Johnson-Matthey model JMFYPEC4 diesel oxidation catalyst 1.0 g/bhp-hr	No control 6.9 g/bhp-hr		Johnson-Matthey model JMFYPEC4 diesel oxidation catalyst 8.5 g/bhp-hr	Johnson-Matthey model JMFYPEC4 diesel oxidation catalyst use to oxidize the condensable hydrocarbons in the diesel exhaust and 0.05% fuel sulfur content 0.38 g/bhp-hr (Equivalent to 50% control)
Coachella Valley Water District 325 bhp Perkins model 1303-9tag1 diesel-fired compression ignition engine with a turbocharger and intercooler, used to drive a portable standby electrical generator.	9/24/99 (A/C No.: 359076) A330-921-00 District Contact: Roy Olivares South Coast AQMD (909) 396-2208 rolivares@aqmd.gov	No control 1.0 g/bhp-hr	Turbocharger and intercooler 6.9 g/bhp-hr		No control 8.5 g/bhp-hr	0.05% fuel sulfur content 0.38 g/bhp-hr
William Bolthouse Farms Limited-use, 402 hp, diesel-fired Caterpillar 3408B IC engine with operating limits of 14 hr/day and 500 hr/yr	6/27/96 (A/C no. S-416-5-0) A330-723-96 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909	Positive crankcase ventilation 14.1 lbm/day (Equivalent to 1.1 g/bhp-hr)	Turbocharger, aftercooler, and timing retard of 4 degrees relative standard timing 89.3 lbm/day (Equivalent to 7.2 g/bhp-hr)		No additional equipment 37.6 lbm/day (Equivalent to 3.0 g/bhp-hr)	Low-sulfur diesel fuel (0.05% S by wt.) and positive crankcase ventilation or control device that is 90% efficient 12.4 lbm/day (Equivalent to 1.0 g/bhp-hr)
City of Tulare Project 960679 Cogeneration operation, including 1000 hp biogas-fired Waukesha model 74042GL clean-burn IC engine; biogas heat content limited to 790 Btu/scf with gas flows limited to 11,100 scf/hr	3/13/96 (A/C no. S-548-8-0) A330-684-96 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909	Gaseous fuel and positive crankcase ventilation 0.25 g/bhp-hr 90% destruction of crankcase emissions	Gaseous fuel and clean-burn combustion 1.0 g/bhp-hr	Gaseous fuel and water scrubber 57.34 lbm/MMscf 340 ppm hydrogen sulfide		Gaseous fuel and positive crankcase ventilation 7.52 lbm/MMscf
Kearny Ventures, Ltd. 208 hp, diesel-fired	1/12/96 (A/C no.	No control 0.33 g/bhp-hr	Turbocharger and aftercooler			Use of low-sulfur diesel fuel (0.05% S by wt.)

Cummins model 6BTA59-F1 IC engine	N-3531-1-0) A330-683-96 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909		6.63 g/bhp-hr			0.25 g/bhp-hr
Sprint Telecommunication Venture Caterpillar Model No. 3412 diesel IC engine driving emergency electrical generator	2/29/96 (A/C no. C-2772-1-0 & C-2772-1-0) A330-677-96 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909				No control No limit	
UPF Corporation 410 hp diesel engine for emergency power generation at glass fiber manufacturing plant	12/2/91 (A/C no. 6036015) A330-489-91 District Contact: Tom Goff/Glenn Stevens San Joaquin Valley Unified APCD (805) 862-5200		Timing retarded by at least 4i, turbocharger, and aftercooler No limit (Assumed control efficiency of 40%)	Fuel oil with less than 0.05% sulfur content No limit		
LA Times 2340 hp Detroit Diesel model no. 16-V-149TIB emergency IC engine with turbo-charger and intercooler	8/30/89 (App. nos. 189118, 189119) A330-406-90 and A330-407-90 District Contact: Hamed Hassan South Coast AQMD (909) 396-2634 hhassan@aqmd.gov		Selective catalytic reduction using NERGAS catalyst 100 lbm/day (expected emission level of 1.5 g/bhp-hr)			

CAPCOA BACT Clearinghouse

Source Category - 96.A

I.C. Engines - Compression Ignition, Emergency

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: I.C. Engines - Compression Ignition Fire Pump

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10

La Paloma Generating Co. LLC 310 bhp Detroit Diesel - Allison model DDFP-L6FA diesel-fired internal combustion engine powering an emergency firewater pump	n.d. (A/C # S-3412-7-0) A330-976-00 District Contact: Leonard Scandura San Joaquin Valley Unified APCD (661) 326-6900	Positive crankcase ventilation (unless voids Underwriter's Laboratories (UL) certification) 0.47 g/bhp-hr	Certified emission rate 7.2 g/bhp-hr at full load 7.2 g/bhp-hr	Low-sulfur diesel fuel with a fuel content of 0.05% by weight No limit	No control 1.2 g/bhp-hr	Low-sulfur diesel fuel with a fuel content of 0.05% by weight 0.22 g/bhp-hr
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CAPCOA BACT Clearinghouse

Source Category - 96.B

I.C. Engines - Compression Ignition Fire Pump

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: I.C. Engines - Compression Ignition, Non-Emergency < 228 hp

Revision: 3.0

Equipment Rating: Less than 228 hp

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Cunningham Davis Environmental 173 diesel-fired John Deere model no. 6068T IC engine driving portable pugmill	4/5/96 (A/C no. N-3653-3-0) A330-685-96 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909		Turbocharger and 4 degrees of retard from standard timing 10.4 g/bhp-hr			Low-sulfur diesel fuel (0.05% S by wt.) or crankcase control device that is 90% efficient 1.0 g/bhp-hr
Ryan-Murphy, Inc. 211 hp diesel engine for nonemergency electrical generator used in soil remediation by heat treatment	1/6/92 (A/C no. 0245002) A330-558-92 District Contact: Tom Goff/Glen Steven San Joaquin Valley Unified APCD (805) 862-5200	Catalyst and positive crank-case ventilation 0.09 lbm/day (Estimated control efficiency of 30%) (A/C expired, unit never built)	Timing retard, turbocharger, and water injection 2.88 lbm/hr (Expected control efficiency of 64%) (A/C expired, unit never built)	0.05% fuel sulfur content 0.04 lbm/hr as SO ₂ 0.02 lbm/hr as SO ₄ (A/C expired, unit never built)	Catalyst (Estimated control efficiency of 90%) (A/C expired, unit never built)	Water injection 0.09 lbm/hr (Estimated control efficiency of 40%) (A/C expired, unit never built)

CAPCOA BACT Clearinghouse

Source Category - 96.C

I.C. Engines - Compression Ignition, Non-Emergency < 228 hp

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: I.C. Engines - Compression Ignition, Non-Emergency => 228 hp

Revision: 3.0

Equipment Rating: Greater than or equal to 228 hp

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NO _x	SO _x	CO	PM/PM10
<p>Kiewit Pacific Co.</p> <p>Portable 755 bhp compression-ignition Caterpillar model 3412 PCTA IC engine with precombustion chamber ignition, being turbocharged and aftercooled, and used to drive a 500 kVA electrical generator.</p>	<p>n.d.</p> <p>A340-915-00</p> <p>District Contact: Thai Tran South Coast AQMD (909) 396-2562 ttran@aqmd.gov</p>	<p>No control</p> <p>1.0 g/bhp-hr</p>	<p>Turbocharger and Aftercooler</p> <p>7.0 g/bhp-hr</p>		<p>No control</p> <p>8.5 g/bhp-hr</p>	<p>No control</p> <p>0.38 g/bhp-hr (Based on equivalent emission level with Johnson Matthey diesel oxidation catalyst, which is capable of 25% PM reduction)</p>
<p>Manson Construction Company</p> <p>Four 2,600 bhp Caterpillar 3516B DITA dredge IC engines and one 550 bhp Detroit Diesel 6063-GK60 import IC engine with total fuel use limits of 11,700 gals/day and 105,000 gals/yr of diesel</p>	<p>3/22/99</p> <p>(A/C No. 972496)</p> <p>A330-884-99</p> <p>District Contact: Alta Stengel San Diego APCD (619) 694-2510</p>		<p>Selective catalytic reduction proposed</p> <p>6.22 g/bhp-hr</p>			
<p>City of Lompoc</p> <p>7.8 MMBtu/day Caterpillar 3406B; Portable 460 bhp diesel-fired greenwaste tubgrinder IC engine at the Lompoc Landfill, and elsewhere in SB County. Unit not eligible for CARB PERP as it operates more than 90 days at landfill.</p>	<p>12/1/98</p> <p>(A/C no. 9678)</p> <p>A330-865-98</p> <p>District Contact: Steve Sterner Santa Barbara County APCD (805) 961-8886 sterners@sbapcd.org</p>		<p>Direct injection, turbocharged, intake air intercooler</p> <p>580 ppmvd @ 15% O₂</p> <p>7 g/bhp-hr</p>			
<p>Archie Crippen</p> <p>500 bhp Detroit Diesel model 8V-92TA IC engine limited to 25 gal/hr diesel input and limited to 8 hr/day and 500 hr/yr of operation</p>	<p>12/9/97</p> <p>(A/C no. C-53-4-0)</p> <p>A330-829-98</p> <p>District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909</p>	<p>Positive Crankcase Ventilation</p> <p>0.3 g/bhp-h4</p>	<p>No control</p> <p>6.2 g/bhp-hr</p>		<p>No control</p> <p>0.51 g/bhp-hr</p>	<p>Low-sulfur diesel fuel and PCV</p> <p>0.41 g/bhp-hr</p>

Ross Island Sand and Gravel 685 hp Cummins model no. KTA 19-G3 diesel-fired IC engine serving a deep water dredge	8/2/96 (A/C no. N-3325-4-0) A330-742-97 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909	Catalytic oxidation and positive crankcase ventilation system 0.04 lbm/day	Selective catalytic reduction with ammonia 28.8 lbm/day (Equivalent to 85% control efficiency)	Low-sulfur diesel fuel (0.05% by wt.) 2.5 lbm/day		Positive crankcase ventilation system and low-sulfur diesel fuel (0.05% by wt.) 14.4 lbm/day
Tracy Material Recovery 360 hp Cummins NTA855P diesel-fired IC engine serving a tub grinder	10/29/96 (A/C no. N-3187-7-0) A330-726-97 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909		Turbocharger, aftercooler, and 10 degrees BTDC for injection timing 21.3 lbm/day			
Parker Hannifin Corp. 450 hp diesel-fired Detroit Diesel model 6V92 IC engine driving an electrical generator limited to 227 gal/day	1/11/96 (A/C no. N-2089-3-0) A330-708-96 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909		Turbocharger, aftercooler, and 4 degrees timing retard of standard timing 9.5 g/bhp-hr			Low-sulfur diesel fuel (not to exceed 0.05% S by wt.) and the use of positive crankcase ventilation or a crankcase control device 1.0 g/bhp-hr
Southern Pacific Milling Company 1.89 MMBtu/hr Caterpillar 3306 DITA 250 bhp diesel powered portable AC electric generator	10/26/93 (A/C # 8993) A330-622-94 District Contact: Steve Sterner Santa Barbara County APCD (805) 916-8886 sterners@sbcapcd.org		Turbocharging, intake air cooling, and fuel injection No limit			
Ryan-Murphy Inc. 1.71 MMBtu/hr Aggreko Custom 175 kW AC generator powered by a 252 bhp diesel-fired Cummins model 6CTA8.3-G IC engine	3/31/94 (A/C # 9183) A330-621-94 District Contact: Steve Sterner Santa Barbara County APCD (805) 916-8886 sterners@sbcapcd.org		Turbocharger, intercooler, engine design to emit no more than 1670 ppm NOx at 3% oxygen No limit			

Ryan-Murphy Inc. 1.71 MMBtu/hr Aggreko Custom 175 kW AC generator powered by a 252 bhp diesel-fired Cummins model 6CTA8.3-G IC engine	3/31/94 (A/C # 9188) A330-620-94 District Contact: Steve Sterner Santa Barbara County APCD (805) 916-8886 sterners@sbcapcd.org		Turbocharger, intercooler, engine design to emit no more than 1670 ppm NOx at 3% oxygen No limit			
Southern Pacific Milling Company 4.27 MMBtu/hr Caterpillar 3408 DITA 603 bhp diesel powered 400 kW AC electrical generator	9/7/93 (A/C # 8959) A330-619-94 District Contact: Steve Sterner Santa Barbara County APCD (805) 916-8886 sterners@sbcapcd.org		Turbocharging, intake air intercooling, 4 deg. from standard timing retard No limit			
Robison, Carlon, and Carlon 600 kw Caterpillar generator model no. 3412 at an aggregate processing facility	6/15/94 (A/C no. A45-693-Y) A330-593-93 District Contact: Dave Mehl Feather River AQMD (916) 634-7659		4 degree injection retard No limit			
Resource Renewal Technologies, Inc. 951 diesel IC engine operating no more than 500 hr/yr as part of an asphalt batching operation (permit action is a transfer of location)	6/18/93 (A/C no. S-1856-3-1) A330-575-93 District Contact: Tom Goff San Joaquin Valley Unified APCD (805) 862-5200		Turbocharger, aftercooler, and injection timing retard of at least 4 degrees 6.6 g/bhp-hr (Equivalent to 40% control efficiency)	Low-sulfur diesel fuel, i.e., less than 0.05% by wt.) 0.2328 g/hp-hr 11.7 lbm/day		
Benton Oil and Gas Co. 480 hp Cummins KTA-1150 diesel reciprocating engine fired on fuel oil no. 1 as part of an exploration oil drilling rig w/ 7 diesel-fired reciprocating engines which can fire a total of 650 gal/day and operate only 360 hours,	12/21/90 (A/C no. 5789) A330-446-90 District Contact: Gregory Chee Monterey Bay Unified APCD (408) 443-1135		Engine injection timing retardation of 6 degrees (Estimated project emissions of 305 lbm/day)			

Benton Oil and Gas Co. 400 hp Detroit Diesel 8V92TA reciprocating engine fired on fuel oil 1 as part of an exploration oil drilling rig w/ 7 diesel-fired reciprocating engines which can fire a total of 650 gal/day and operate only 360 hours over t	12/21/90 (A/C no. 5789) A330-445-90 District Contact: Gregory Chee Monterey Bay Unified APCD (408) 443-1135		Engine injection timing retardation of 6 degrees (Estimated total project emissions of 305 lbm/day)			
Western Pacific Dredging Co. General Motors Model No. 12-567 diesel-fired IC engine manifolded together with two other engines to common control devices (see determinations A330-428-90 and A330-429-90)	2/7/90 (App. no. 212138) A330-430-90 District Contact: Kien Huynh South Coast AQMD (909) 396-2635 khuynh@aqmd.gov	Oxidation catalyst No limit (80% control expected)	Selective catalytic reduction No limit (94% estimated control)			Catalyst guard bed No limit (80% control expected)
Western Pacific Dredging Co. Cooper Bessemer Model No. JS-8-1 diesel-fired IC engine manifolded together with two other engines to common control devices (see determinations A330-428-90 and A330-430-90)	2/7/90 (App. no. 212138) A330-429-90 District Contact: Kien Huynh South Coast AQMD (909) 396-2635 khuynh@aqmd.gov	Oxidation catalyst No limit (80% control expected)	Selective catalytic reduction No limit (94% estimated control)			Catalyst guard bed No limit (80% control expected)
Western Pacific Dredging Co. Cooper Bessemer Model No. LSV-16 diesel-fired IC engine manifolded together with two other engines to common control devices (see determinations A330-429-90 and A330-430-90)	2/7/90 (App no. 212138) A330-428-90 District Contact: Kien Huynh South Coast AQMD (909) 396-2635 khuynh@aqmd.gov	Oxidation catalyst No limit (80% control expected)	Selective catalytic reduction using NERGAS catalyst No limit (94% estimated control)			Catalyst guard bed No limit (80% control expected)
Smith-Rice Co. 2100 hp diesel-fired Caterpillar IC engine operated at 25% average capacity	8/31/89 (App. no. 185702) A330-422-90 District Contact: Kien Huynh South Coast AQMD (909) 396-2635 khuynh@aqmd.gov		Selective catalytic reduction using NERGAS catalyst 80% control (at 25% load)			
Texaco, Inc. B.S. Duff #1 Well	10/27/89		Five degrees individual engine			

Three 850 hp Caterpillar Model D398TA diesel IC engines (temporary source)	(A/C no. 5017)		ignition timing retard			
	A330-345-90					
	District Contact: Gregory Chee Monterey Bay Unified APCD (408) 443-1135		13.3 lbm/hr/unit (equivalent to 7.1 g/bhp-hr)			

CAPCOA BACT Clearinghouse

Source Category - 96.D

I.C. Engines - Compression Ignition, Non-Emergency => 228 hp

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Lean Melting Furnaces - Pot or Crucible, Non-Refining Operations

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Quemetco, Inc. Gas-fired, 4.24 MMBtu/hr kettle-type furnace for a lead holding and refining operation	12/22/86 (App. no. 148339) A380-206-87 District Contact: Hamed Hassan South Coast AQMD (909) 396-2634 hhassan@aqmd.gov					Baghouse 95% control (estimated) Lead: Baghouse 98% control (estimated)

CAPCOA BACT Clearinghouse

Source Category - 104.2

Lean Melting Furnaces - Pot or Crucible, Non-Refining Operations

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Liquid Transfer and Handling - Marine, Loading

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Moblie Oil Corp. 12,000 bbl/hr loading and unloading of gasoline at marine terminal	6/29/92 (App. No.: 265193) A350-617-94 District Contact: Thomas Yeh South Coast AQMD (909) 396-2595 tyeh@aqmd.gov	IT-MxGill MEF-150 incinerator No limit				
Gaviota Terminal Co.	5/13/87	Burner management and use of pipeline-	Thermal De-NOx	Jettweld sulfa-check		

Thermal incinerator as part of VOC control system for marine tanker loading system using pipeline-quality gas for pilot fuel	(A/C no. 6408) A350-327-89 District Contact: Sanjib Mukherji Santa Barbara Co. APCD (805) 961-8800	quality gas as pilot fuel 7.74 lbm/hr	6.92 lbm/hr	hydrogen sulfide removal or equivalent; use of pipeline-quality gas as fuel; no more than 4 ppmv hydrogen sulfide content 6.65 lbm/hr		
Gaviota Terminal Co. 100,000 bbl/day marine tanker loading system	5/13/87 (A/C no. 6408) A350-326-89 District Contact: Sanjib Mukherji Santa Barbara Co. APCD (805) 961-8800	Vapor balance and collection system; refrigeration and condensation system; plus an incinerator and a backup flare 95% control 95.4 lbm/hr				
Gaviota Terminal Co. Vacuum trucks at oil and gas marine terminal	5/13/87 (A/C no. 6408) A350-325-89 District Contact: Sanjib Mukherji Santa Barbara Co. APCD (805) 961-8800	Carbon cannisters on all vents to the atmosphere (or an equivalent system) 90% control		Caustic scrubber (or equivalent) No limit		
Gaviota Terminal Co. Drain sumps in service at oil and gas marine terminal	5/13/87 (A/C no. 6408) A350-324-89 District Contact: Sanjib Mukherji Santa Barbara Co. APCD (805) 961-8800	Carbon cannisters on all vents to the atmosphere (or an equivalent system) 90% control				
Gaviota Terminal Co. Fugitive emission sources of reactive organic compounds in gas and liquid service at oil and gas marine terminal	5/13/87 (A/C no. 6408) A350-323-89 District Contact: Sanjib Mukherji Santa Barbara Co. APCD (805) 961-8800	Inspection and maintenance program; relief valves vented to incinerator; pumps and compressors equipped with mechanical and tandem seals; open-ended valves blinded; HC service flanges equipped with proper gaskets No limit (Est. 77% control)				

Exxon-SYU-Las Flores John Zink Model PSFG14 tail-gas incinerator at stripping gas treatment plant processing a maximum of 15 Mscf/ day of platform gas	11/19/87 (A/C no. 5651) A350-321-89 District Contact: Sanjib Mukherji Santa Barbara Co. APCD (805) 961-8800	Proper burner operation and use of pipeline-quality fuel for pilot gas 0.01 lbm/hr 0.004 lbm/MMBtu	Staged fuel-gas combustion at burner plus thermal De-NOx 38 ppmvd at 2% oxygen 1.4 lbm/hr (Equivalent to 0.12 lbm/MMBtu)	24 ppmvd H2S content in pilot and 100 ppmvd in feed gas 87 ppmvd at 2% oxygen 4.5 lbm/hr (Equivalent to 0.37 lbm/MMBtu)	Proper burner operation and use of pipeline-quality fuel for pilot gas 1.1 lbm/hr 0.092 lbm/MMBtu	24 ppmvd H2S content in pilot and 100 ppmvd in feed gas Estimated emission of 0.062 lbm/MMBtu
Exxon Co. USA Vacuum trucks at oil and stripping gas treatment plant	11/19/87 (A/C no. 5651) A350-318-89 District Contact: Sanjib Mukherji Santa Barbara Co. APCD (805) 961-8800	Use of carbon cannisters on all atmospheric vents No limit (Estimated 90% control from use of carbon cannisters on vents)				
Exxon Co. USA Drain sumps at oil and stripping gas treatment facility	11/19/87 (A/C no. 5651) A350-317-89 District Contact: Sanjib Mukherji Santa Barbara Co. APCD (805) 961-8800	Use of carbon cannisters on all atmospheric vents No limit (Estimated 90% control from use of carbon cannister)				
Exxon Co. USA Fugitive emission sources of reactive organic compounds at oil and stripping gas treatment facility	11/19/87 (A/C no. 5651) A350-316-89 District Contact: Sanjib Mukherji Santa Barbara Co. APCD (805) 961-8800	Inspection and maintenance program; closed purge sampling system No limit (Estimated 77% control)				
Exxon Co. USA Depressuring of vessels	11/19/87 (A/C no. 5651) A350-315-89 District Contact: Sanjib Mukherji Santa Barbara Co. APCD (805) 961-8800	Depressure to vapor control system or flare and purge with pipeline-quality gas No limit		Venting of exhaust gases through amine contactor unit (TGCU) for H2S control No limit		

Exxon Co. USA Transportation terminal for loading crude petroleum (oil storage facilities, tanker loading, tanker loading pumps, pipeline booster pumps)	11/19/87 (A/C no. 5651) A350-313-89 District Contact: Sanjib Mukherji Santa Barbara Co. APCD (805) 961-8800	Vapor recovery and control system (compressors, refrigeration unit, and John Zink YEO incinerator) 99.8% control				
Exxon-SYU-Las Flores John Zink YEO incinerator (part of VOC control system serving two 270,000 barrel crude oil storage tanks at marine transportation terminal)	11/19/87 (A/C no. 5651) A350-312-89 District Contact: Sanjib Mukherji Santa Barbara Co. APCD (805) 961-8800		Thermal De-NOx 0.43 lbm/hr while recharging storage tank and 1.40 lbm/hr at all other times	Sulfur content limited to 24 ppmvd 0.45 lbm/hr while recharging storage tank and 1.80 lbm/hr at all other times		
Exxon Co. USA Pilot operations of custom Z to G John Zink thermal oxidizer at oil treating plant processing 140,000 barrels/day of dry oil	11/19/87 (A/C no. 5651) A350-311-89 District Contact: Sanjib Mukherji Santa Barbara Co. APCD (805) 961-8800		Proper burner operation 100 lbm/MMscf of fuel gas	Fuel-gas sulfur content not to exceed 24 ppmvd 4.05 lbm/MMscf of fuel gas	Proper burner operation 20 lbm/MMscf of fuel gas	Custom burner design 4 lbm/MMscf of fuel gas
Wickland Oil Marine loading with capacity of 10,000 barrels per day	6/86 (A/C no. 30472) A340-141-86 District Contact: Steve Hill Bay Area AQMD (415) 771-6000	No controls				
Chevron-Gaviota Depressuring of vessels at marine loading terminal	2/6/86 (A/C no. 5704) A350-133-86 District Contact: Sanjib Mukherji Santa Barbara Co. APCD (805) 961-8800	Depressure to vapor control system, purge with pipeline-quality gas 100% control		Vent exhaust thru caustic scrubber for H2S control 80% control		

Chevron-Gaviota Fugitive ROC at marine terminal	2/6/86 (A/C no. 5704) A350-131-86	I & M for onshore facilities, pressure relief devices, etc. 60% eff. (gas) 70% (oil) 15.7 lbm/hr				
	District Contact: Bill Master Santa Barbara Co. APCD (805) 961-8800					

CAPCOA BACT Clearinghouse

Source Category - 107

Liquid Transfer and Handling - Marine, Loading

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Liquid Transfer and Handling - Tank Truck and Rail Car Bulk Loading

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Van Waters & Rogers Four truck loading stations limited to loading a total of 60,000 gal/day and 4,000,000 gal/yr. of organic liquids (mineral spirits, styrene, etc.) into trucks. Nonvolatile liquids not counted towards gallonage limit.	9/9/99 (A/C No.: 353762) A360-917-00 District Contact: Belinda C. Wan South Coast AQMD (909) 396-2532 bwan@aqmd.gov	John Zink model ZCS-1-4-20X-3/10 direct-flame thermal oxidizer with two 3.6 MMBtu/hr natural gas-fired burners. One burner is for the passive source and one is for the blower-assisted sources 4 tons/yr VOC emissions facility wide (95% control)				
Stockton Transmodal, Inc. Railcar unloading operation into trucks with limits of 10000 gal/day methanol, 3500 gal/ day propylene, and 4500 gal/day 2-ethyl hexyl nitrate	8/6/96 (A/C no. N-3479-3-0) A430-729-96 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909	Bottom loading with vapor recovery system having a control efficiency of at least 95% 26.9 lbm/day (Equivalent to 95% control efficiency)				
Texaco Trading and Transportation, Inc. 12,000 bbl/day bottom loading light crude oil truck rack	4/14/95 (A/C no. S-83-6-0) A350-641-95 District Contact: George Heinen San Joaquin	Bottom loading with dry break couplers and vapor collection with air-assisted flare having pilot fired with natural gas 10.1 lbm/day (Equivalent to 99% control)	Bottom loading with dry break couplers and vapor collection with air-assisted flare having pilot fired with natural gas 12 lbm/day (Equivalent to			Bottom loading with dry break couplers and vapor collection with air-assisted flare having pilot fired on natural gas 2.5 lbm/day (Equivalent to

	Valley Unified APCD (559) 230-5909		0.100 lbm/MMBtu)			0.012 lbm/MMBtu)
Chevron-Gaviota Natural gas liquids and liquified petroleum truck loading	2/6/86 (A/C no. 5704) A350-127-86 District Contact: Bill Master Santa Barbara APCD (805) 961-8800	Submerged loading with closed vapor balance system 100% control				

CAPCOA BACT Clearinghouse Source Category - 109 Liquid Transfer and Handling - Tank Truck and Rail Car Bulk Loading

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Lithographic Offset Printing - Heatset

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
West Coast Lithographers, Inc. Komori Lithrone sheet-feed lithographic printing presses with integral dryers	10/15/92 (A/C no. 8582) A340-583-93 District Contact: Thu Bui Bay Area AQMD (415) 749-5119	Kerosene-like oil-based inks, no more than 10% by vol. VOC fountain solution, and no more than 30% by vol. VOC clean-up solvents (or 7.71 lbm/gal VOC and VOC vapor pressure less than 25 mm Hg) No limit				
Everett Graphics Co. Heidelberg model 1025-LE color lithographic press with an output capacity of 13,000 sheets/hr	7/30/92 (A/C no. 7765) A340-582-93 District Contact: Weyman Lee Bay Area AQMD (415) 749-4708	Soy-based inks with no more than 8.5% VOC by wt., fountain solutions with no more than 4% VOC by wt., clean-up solvent with no more than 4 lbm VOC/gal, clear coat with no VOC No limit				
Consolidated Publications Hantscho two-web lithographic printing press with 5 MMBtu/hr natural-gas, two-web drying oven and having an output capacity 38,000 impressions/hr	1/22/92 (A/C no. 7920) A340-534-92 District Contact: Julian Elliot Bay Area AQMD (415) 749-4705	TEC Systems Phoenix 2000 1.5 MMBtu/hr thermal oxidizer operating at 1100i F; Less than 12% VOC fountain solution; Less than 10 mm Hg cleanup solvents at 20 degrees C 95% POC destruction efficiency by thermal oxidizer				
Freedom Newspaper Inc.	11/1/90	TEC Systems thermal oxidizer				

Rockwell newspaper printing system: Lithographic offset press (heatset) with a natural gas oven	(App. No.:238609 and 238610) A340-508-92 District: Charlie Tupac South Coast AQMD (909) 396-2684 ctupac@aqmd.gov	95% destruction efficiency limit				
Graphics Media Hantscho four-color lithographic web offset press and 3.3 MMBtu/hr TEC oven	4/15/90 (App. nos. 222994 and 222995) A340-459-90 District Contact: Stacey Ebner South Coast AQMD (909) 396-2504 sebner@aqmd.gov	Catalytic oxidizer 95% destruction 68 lbm/day				
Forms Engineering Co. Two Goebel lithographic web offset presses and two 2.3 MMBtu/hr TEC Systems dryers	4/15/90 (App. nos. 221393 thru 221395) A340-457-90 District Contact: Stacey Ebner South Coast AQMD (909) 396-2504 sebner@aqmd.gov	Afterburner 95% destruction efficiency 68 lbm/day				
George Rice and Sons (printing line no. 10) 250 hp Harris M300 lithographic web offset press with 4.2 MMBtu/hr TEC gas dryer	3/1/90 (App. no. 209357) A390-437-90 District Contact: Stacey Ebner South Coast AQMD (909) 396-2504 sebner@aqmd.gov	Thermal oxidizer; 12% fountain solution limit 90% destruction efficiency				
Midway Press, Inc 250 hp Harris lithographic web offset and 4.2 MMBtu/hr TEC gas dryer	3/3/89 (App. nos. 173321 and 173328) A340-434-90 District Contact: Stacey Ebner South Coast AQMD (909) 396-2504 sebner@aqmd.gov	Afterburner 52 lbm/day (Assumed control efficiency of 85%)				

W. A. Krueger Co. 8-color Harris lithographic offset printing press with 8.8 MMBtu/hr gas-fired oven	4/11/89 (App. nos. 182297 and 192298) A340-426-90 District Contact: Jim Serbia South Coast AQMD (909) 396-2523 js Serbia@aqmd.gov	Afterburner 64% control				
South Coast Printing TEC heat-set, lithographic, web printing press	6/5/89 (App. nos. 183978 and 183979) A340-423-90 District Contact: Ed Guy South Coast AQMD (909) 396-2521 eguy@aqmd.gov	Afterburner 91% control				
Lithographix, Inc. Heidelberg web offset press and 2.22 MMBtu/hr gas dryer	6/27/89 (App. nos. 192015 and 192016) A340-405-90 District Contact: Stacey Ebner South Coast AQMD (909) 396-2504 sebner@aqmd.gov	TEC afterburner 40 lbm/day				
Calif. Offset Printers Hantscho Model MK-16 lithographic printing press and Miehle II lithographic printing press	4/19/89 (App. no. 180437) A340-375-90 District Contact: Sidney Baker South Coast AQMD (909) 396-2524 sbaker@aqmd.gov	Thermal oxidizer 90% control				

CAPCOA BACT Clearinghouse

Source Category - 110.1

Lithographic Offset Printing - Heatset

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Lithographic Offset Printing - Non-Heatset

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10

Smart Cards USA, Inc. Heidelberg model 74-5 Speedmaster sheet fed lithographic printing press, printing on paper and plastic stock, with an ultra- violet curing oven	12/21/99 (A/C No.: 358382) A340-965-00 District Contact: Rene Loof South Coast AQMD (909) 396-2544 rloof@aqmd.gov	Low-VOC (VOC<50 g/l) UV curable inks, low VOC, fountain solution VOC limit of 0.6 lb/gal (8% by volume), and low-VOC clean-up solvent with a composite vapor pressure limit of 5 mmHg 3,780 lbs/ calender month facility wide				
International Paper Company Graphics arts printing operation with eight Comexi model X2108 CNC 7-color flexigraphic presses and two Eclipse 1.2 MMBtu/hr natural gas-fired dryers. Presses feed into a flexographic coating station.	10/7/99 (A/C No.: C-264-11-1) A340-950-00 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909 george.heinen@valleyair.org	Use of ultra-violet cured and low-VOC content inks (1.0 lb VOC/gal normal coating), 3.3 lb VOC/gal specialty metallic coating, 0.63 lb VOC/gal varnish. All VOC limits are less water and exempt compounds No limit				
Brothers Printing Company Heidelberg model SORS/Z sheet fed, single color lithographic printing	n.d. (Application No.: 356664) A340-938-00 District Contact: Amir Dejbakhsh South Coast AQMD (909) 396-2618 adejbakhsh@aqmd.gov	Use of Regulation XI compliant materials. Fountain solution limited to no more than 8% VOC by volume. 667 lbs/month VOC facility wide (Equivalent to compliance with Regulation XI)				
Kirk Plastic Co. Inc, Kirk Plastic Inc. Printing and drying system: Printing Press no. 2, Lithographic, Heidelberg sheet feed, model Sormz, s/n 523-675, two color, 29" sheet width, 19.5 hp; 2) 163 KVA Printing Research Super Blue UV/infrared dryer	5/8/95 (Application no. 302577) A430-891-99 District Contact: Knut Beruldsen South Coast AQMD (909) 396-3136 kberuldsen@aqmd.gov	Ultraviolet/infrared dryer 68 lb/day				
Pacific Southwest Container Offset lithographic non-heatset press	12/19/96 (A/C no. N-3606-9-0) A370-772-97 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909	VOC contents limited to 5 and 6% for inks and fountain solution, respectively, less water and exempt compounds, except for high end graphics with 30 and 15 %, respectively 77 lbm/day				

Sinclair Printing Co. Harris nine-color lithographic printing press with 36-inch web width	10/9/90 (App. no. 197794) A340-464-91 District Contact: Stacey Ebner South Coast AQMD (909) 396-2504 sebiner@aqmd.gov	Solution VOC limits as applied: fountain solution no greater than 9% VOC; blanket wash no greater than 3.2 lbm VOC/gal; roller wash no greater than 2.3 lbm VOC/gal 201 lbm/day				
George Rice and Sons Five 67 hp Heidelberg sheet-fed lithographic offset presses modified by the addition of five infrared dryers	6/28/90 (App. nos. 215488 thru 215492) A340-439-90 District Contact: Stacey Ebner South Coast AQMD (909) 396-2504 sebiner@aqmd.gov	Low VOC inks (<300 g/l) 597 lbm/day total for five units				
International Paper 7000 sheet/hr lithographic single-sheet printing press	3/23/89 (A/C no. 1338) A340-340-89 District Contact: Doug Hall Bay Area AQMD (415) 771-6000	Low-solvent inks with no more than 10% VOC by volume; chilled fountain solution (no more than 45 degrees F) 15.7 tons/yr				
Stecher-Traung-Schmidt Lithographic color printing press	11/5/85 (A/C no. 30733) A340-111-86 District Contact: Ellen Linder Bay Area AQMD (415) 771-6000	Low VOC solutions, refrigeration and alcohol reclaim, low VOC ink 15% VOC content				

CAPCOA BACT Clearinghouse

Source Category - 110.2

Lithographic Offset Printing - Non-Heatset

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Metal Annealing Furnaces

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NO _x	SO _x	CO	PM/PM10
U.S.S. Posco Industries	12/14/87		Mitsubishi Selective Catalytic Reduction unit			

95.7 MMBtu/hr Mitsubishi - Custom Kawasaki annealing furnace	(A/C no. 32211)	50 lb/day			
	A310-881-99 District Contact: Don Van Buren Bay Area AQMD (415) 749-4746 dvanburen@baaqmd.gov				

CAPCOA BACT Clearinghouse

Source Category - 111.2

Metal Annealing Furnaces

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Mixer or Blender - Wet

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Van Waters & Rogers Three 8,000 gal blending tank use to prepare batches containing organic liquids and powder with particle size greater than 10 microns. Throughput limited to 1,000,000 gal/yr.	9/9/99 (A/C No.: 353756) A360-919-00 District Contact: Belinda C. Wan South Coast AQMD (909) 396-2532 bwan@aqmd.gov	John Zink model ZCS-1-4-20X-3/10 direct-flame thermal oxidizer with two 3.6 MMBtu/hr natural gas-fired burners. One burner is for the passive source and one is for the blower-assisted sources 4 tons/yr VOC emissions facility wide (95% control)				

CAPCOA BACT Clearinghouse

Source Category - 114

Mixer or Blender - Wet

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Non-Metallic Mineral Processing - Except Rock and Aggregate

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Celite Corporation - Lompoc Plant Mikopul model 611R-10-30-TR"C" general waste baghouse to collect waste material throughout the powder-mill system. 611 pulse air stacks each 10 ft. long; fabric: dual density polyester felt, single outside surface.	1/21/99 (A/C no. 10023) A390-876-99 District Contact: Michael Goldman Santa Barbara County APCD (805) 961-8821 goldmanm@sbcapcd.org					Mikopul model 611R-10-30-TR"C" general waste baghouse; Rating: 23,000 scfm 0.0045 gr/dscf stack opacity can not exceed 10%

CAPCOA BACT Clearinghouse

Source Category - 117

Non-Metallic Mineral Processing - Except Rock and Aggregate

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Nut Roasting

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Security Trust/Safeway 4.4 MMBtu/hr peanut roasting operation fired on natural gas with a limit of 21 tons/day throughput	5/30/97 (A/C no. N-3839-3-0) A370-780-97 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909	No control 0.1 lbm/ton output	No control 0.1 lbm/MMBtu			No control 0.54 lbm/ton output
Cornnuts, Incorporated Heat and Control model no. CNC5516.5 cornnut cooker with a limit of 8000 lb/hr and 96 ton/day of cornnuts processed	7/1/96 (A/C no. C-375-1-1) A370-736-97 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909					Mist eliminator followed by a Sly Manufacturing venturi scrubber with cyclonic separator 0.0081 gr/dscf 22.97 lbm/day
Homa Ranch Gas-fired Proctor Schuatz nut roaster/cooler with two 1.6 MMBtu/hr burners	9/23/93 (A/C no. S-713-4-2) A370-600-93 District Contact: Tom Goff San Joaquin Valley Unified APCD (805) 862-5200		Natural-gas fuel firing with exit-gas recirculation 0.095 lbm/MMBtu			Natural gas fuel firing and P&F model no. RJ10-336-4728 pulse jet baghouse 0.0048 lbm/MMBtu

CAPCOA BACT Clearinghouse

Source Category - 118

Nut Roasting

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Nut Roasting - Handling Equipment

Revision: 3.0

Equipment Rating: Less than 2,000 lbs/hr

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS
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		VOC/HC	NOx	SOx	CO	PM/PM10
Blackwell Land Company, Inc. 2,500 lbm/hr Pistachio Finishing Operation including a needle separator with fines discharge airleg	12/26/84 (A/C # 3004006) A370-061-85 District Contact: Tom Paxson San Joaquin Valley Unified APCD (former Kern County APCD) (805) 861-3682					RL Enterprises high efficiency cyclone discharging to two sock filters in parallel 0.63 lbm/hr
Kern Pistachio Coop. Pistachio precleaning/ hulling /drying	7/25/84 (A/C # 3068002A) A370-045-84 District Contact: Tuan Ngo San Joaquin Valley Unified APCD (former Kern County APCD) (805) 861-3682					High frequency cyclones and fabric collector 0.24 gr/scf (cyclone) 0.0084 gr/scf (fabric collector)

CAPCOA BACT Clearinghouse

Source Category - 119

Nut Roasting - Handling Equipment

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Oil and Gas Production - Combined Tankage

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
R & R Resources 1000 bbl fixed-roof petroleum storage tank	10/15/96 (A/C no. S-1339-7-1) A350-743-97 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909	PV-vent set to within 10% of maximum allowable working pressure 8.755 lbm/day 2.35 psia TVP				
Unocal California Pipeline Company 84,000 bbl floating roof welded tank acting as surge tank for oil pipeline	2/26/93 (A/C no. S-1522-0001-03) A350-569-93	Secondary wiper seal with primary metal shoe shield (Flex- A-Shield) No limit				

	District Contact: B. Coppersmith San Joaquin Valley Unified APCD (805) 862-5200					
San Joaquin Refining Co. 4105 bbl/day diesel hydrogenation unit used in production of low-sulfur diesel fuel	10/22/91 (A/C no. 2015079) A350-488-91 District Contact: Tom Goff/Allan Phillips San Joaquin Valley Unified APCD (805) 862-5200			Sulfur recovery unit with tail-gas treating unit using amine-based solvent to treat gas to 10 ppm hydrogen sulfide and continuous incineration 95% control efficiency		
Shell Western Exploration and Production Modification to 1,000 bbl fixed-roof crude oil tank to allow throughput increase of 200 barrels per day	9/27/91 (A/C no. 4013376B) A350-484-91 District Contact: Kathleen Proffer San Joaquin Valley Unified APCD (805) 862-5200	Vapor recovery system, including one vapor control line (vacuum line), one pressure valve, and one non-condensable vapor piping to incineration devices 99% control efficiency				
Shell Western Exploration and Production Modification to 1,000 bbl fixed-roof crude oil tank to allow throughput increase of 200 barrels per day	9/27/91 (A/C no. 4013375B) A350-483-91 District Contact: Kathleen Proffer San Joaquin Valley Unified APCD (805) 862-5200	Vapor recovery system, including one vapor control line (vacuum line), one pressure valve, and one non-condensable vapor piping to incineration devices 99% control efficiency				
Exxon Co. USA Vapor recovery system on oil treating plant processing 140,000 barrels of dry oil per day each	11/19/87 (A/C no. 5651) A350-310-89 District Contact: Sanjib Mukherji Santa Barbara Co. APCD (805) 961-8800	Thermal oxidizer 5.3 lbm/mmsec of pilot gas				
Exxon Co. USA Oil treating plant processing 140,000 barrels of dry oil per day	11/19/87 (A/C no. 5651) A350-309-89	Vapor recovery system 99.8% control efficiency				

each	District Contact: Sanjib Mukherji Santa Barbara Co. APCD (805) 961-8800					
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CAPCOA BACT Clearinghouse

Source Category - 120

Oil and Gas Production - Combined Tankage

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Oil and Gas Production - Wellhead

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NO _x	SO _x	CO	PM/PM10
Beard Brothers Oil and Gas Cyclically-injected steam- enhanced oil production operation Four cyclically steam enhanced oil production wells	4/11/96 (A/C no. S-2963-1-0) A350-752-97 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909	No control 13 lbm/day/well				
General Production Oil Three cyclically enhanced oil production well pilot test limited to 180 days of operation	8/11/95 (A/C no. S-2796-1-0) A350-664-95 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909	Fugitive emissions limited by number of wells, inspection and maintenance program, and closed casing vents 3.6 lbm/well-day				
ARCO Oil and Gas Company Thermally enhanced oil recovery wells	10/20/93 (A/C no. S-1135-183-2) A350-639-95 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909	Vapor control oil well casing vent piping network with pressure regulators tied into existing tank vapor control system No limit (Equivalent control efficiency of 99%)				
Bakersfield Energy Resources Heavy oil cycling steam project	5/12/92 (A/C nos. 4225007 thru 014)	Condensation unit 71% control efficiency				

Casing vapor collection system	A350-556-92 District Contact: Tom Goff San Joaquin Valley Unified APCD (805) 862-5200					
Mobil Oil Company Thermally enhanced oil recovery operation with sulfur removal system (Sulfa-Check or Sulfarox)	6/16/92 (A/C no. 4011232B) A350-543-92 District Contact: Tom Goff/Mike Buss San Joaquin Valley Unified APCD (805) 862-5200			Sulfa check sulfur scrubbing system for H2S control 95% control efficiency		
Chevron - Cymric Field Petroleum TEOR polish rod used in oil well	10/18/91 (A/C no. 4008352G) A350-491-91 District Contact: Tom Goff/Mike Buss San Joaquin Valley Unified APCD (805) 862-5200	Inspection and maintenance program No limit (Expected control efficiency of 53%)				
Mobil Oil Co. In situ combustion on a well vent control system	1/3/89 (A/C no. 4011) A350-362-90 District Contact: Tom Goff Kern Co. APCD (now the San Joaquin Valley Unified APCD) (805) 862-5200			Sulfa check sulfur scrubbing system 90% control		Sulfa check sulfur scrubbing system 31.4 lbm/day
Midsun Partners Seventeen casing vents for TEOR oil wells	1/20/89 (A/C no. 4184002) A350-304-89 District Contact: Tom Goff Kern Co. APCD (now the San	Refrigeration to separate condensable vapors; compression of non-condensable gases followed by injection into underground oil production zones 99% control 53.38 lbm/day				

	Joaquin Valley Unified APCD) (805) 862-5200					
Petro-Lewis Corp. Well vent emissions for 91 steam drive wells	2/10/87 (A/C no. 4052134A) A350-173-87 District Contact: Tom Goff Kern Co. APCD (now the San Joaquin Valley Unified APCD) (805) 862-5200	Collection, condensation, and compression system with incineration in scrubbed steam generators 99% control 11.91 lbm/hr				
Elk Hills Naval Petroleum Reserve #1 Steam drive well vent vapor collection	4/26/86 (A/C no. 4091178) A350-122-86 District Contact: Tom Goff Kern Co. APCD (now the San Joaquin Valley Unified APCD) (805) 862-5200	Gas/condensate separation, heat exchangers, gas vented to pipeline 99% control				

CAPCOA BACT Clearinghouse

Source Category - 121

Oil and Gas Production - Wellhead

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Open Spraying - Spray Gun

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Concrete Products, Inc. Concrete products coating operation (open spraying)	3/12/98 (A/C no. N-3448-1-1) A340-834-98 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909	Water based coatings with a VOC content of 0.6 lb/gal less water and exempt compounds or less HVLP application equipment 8.9 lbm/day				HVLP application equipment 54.7 lbm/day
Valley Detroit Diesel Allison Paint spraying operation	12/22/92 (A/C no. S-0149-0001-00)	HVLP spray gun, low VOC paints, and enclosed gun washing system 1.7 lbm/day				HVLP spray gun to increase transfer efficiency

Paint spray operation of for metal parts limited to 1 qt paint/day	A340-570-93 District Contact: Tom Goff San Joaquin Valley Unified APCD (805) 862-5200					0.04 lbm/day
Tracor Flight System Aerospace component and assembly manufacturing operations limited to 2.5 gal/day of aircraft coating use	10/23/91 (A/C no. 0102001A) A340-560-92 District Contact: Tom Paxson Kern County APCD (805) 861-2593	Low VOC coatings (Estimated emissions of 19.9 lbm/day)				

CAPCOA BACT Clearinghouse

Source Category - 122.A

Open Spraying - Spray Gun

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Pharmaceutical - Operations Involving Solvents

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Kelco Division of Merck, Inc. Biogum processing lines with capacities of 8,500 and 17,000 cfm	7/26/91 (App. no. 901495) A410-590-93 District Contact: Stan Romelczyk San Diego Co. APCD (619) 694-3308	Diall water scrubbers 95% control efficiency				
ICN Pharmaceuticals Four 500,000 Btu/hr steam-heated drying ovens	8/16/89 (App. nos. 183967 thru 183971) A360-401-90 District Contact: Belinda Wan South Coast AQMD (909) 396-2532 bwan@aqmd.gov	Double-bed type carbon adsorber No limit (estimate control efficiency of 97%)				

CAPCOA BACT Clearinghouse

Source Category - 124

Pharmaceutical - Operations Involving Solvents

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Polyester Resin Operations - Molding and Casting

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Syntec Marble, Inc. Polyester resin operation for synthetic marble casting	3/15/96 (A/C no. N-3311-1-0 & N-3311-2-0) A410-688-96 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909	Use of the low-VOC resins with a monomer content of 30%, pigmented gel coats with a maximum monomer content of 35%, and clear gel coat with maximum monomer content of 47% 28lbm/day for N-3311-1-0 20.8 lbm/day for N-3311-2-0				

CAPCOA BACT Clearinghouse

Source Category - 129

Polyester Resin Operations - Molding and Casting

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Polystyrene Extruder

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Pactuco Polystyrene extrusion process using 1000 lbm EP5/hr	12/9/96 (A/C no. 9133) A340-732-96 District Contact: Steve Sterner Santa Barbara Co. APCD (805)961-8886 sterners@sbcapcd.org	Pentane ventilation collection system vented to 3000 HECO recuperative thermal oxidizer rated at 3000 scfm 98.5% destruction efficiency or 10 ppmvd	Cyclomax low-NOx burner on 3.5 MMBtu/hr recuperative thermal oxidizer No control (Controlled level at 25 ppmvd at 3% oxygen)			
Dart Container Corp. Styrofoam cup mfg.: mixers, pre-expanders, and cup presses	2/22/88 (A/C no. 87-158) A410-267-88 District Contact: George Heinen San Joaquin Co. APCD (559) 230-5909	Pentane collection system Hoods ducted to boilers for incineration 250 lbm/day				

CAPCOA BACT Clearinghouse

Source Category - 130

Polystyrene Extruder

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Polystyrene Manufacturing

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Tennco Packaging Specialty Reclaim Line for ground polystyrene: hopper served by a MAC #39AVRC14 baghouse; #EX-70 reclaim extruder served by a Smog Hog SH20 electrostatic precipitator; #F-71 feed blower; #F-72 discharge blower feeding reclaim silos	10/13/99 (A/C # C-36-22-0) A410-969-00 District Contact: George Heinen San Joaquin Valley Unified APCD (599) 230-5909 george.hienen@valleyair.org	1.5 MMBtu/hr CE model 13.6 ROCC98 Combustion Changer Regenerative Thermal Oxidizer 0.323 lb VOC/ton reclaimed foam 24 tons reclaimed foam/day				

CAPCOA BACT Clearinghouse

Source Category - 131

Polystyrene Manufacturing

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Pressure Relief Valves, Emergency - Process Units

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Pacific Offshore Pipeline Co. Fugitive hydrocarbon emissions from pressure relief devices at an oilfield natural gas processing plant	2/4/97 (A/C no. 9047) A350-748-97 District Contact: Steve Sterner Santa Barbara Co. APCD (805) 961-8886 sterners@sbcapcd.org	All pressure relief devices to be routed by a closed vent system to a thermal oxidizer 100 ppmv THC w/ EPA Method 21 95% combined capture/destruction at thermal oxidizer				

CAPCOA BACT Clearinghouse

Source Category - 135

Pressure Relief Valves, Emergency - Process Units

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Process Valves - Gate, Globe, and Ball

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Pacific Offshore Pipeline Co. Fugitive hydrocarbon emissions from valves at an oilfield natural gas processing plant	2/4/97 (A/C no. 9047) A350-746-97	Low emission design valves (e.g., seamless bellows and low-emission packing); leak detection and repair (LDAR) program LDAR minor leak threshold of 100 ppmv THC using EPA Method 21				

	District Contact: Steve Sterner Santa Barbara Co. APCD (805) 961-8886 sterners@sbcapcd.org				
Ultramar, Inc. Process valves	10/7/91 (App. no. 256881) A350-614-94 District Contact: Chris Perri South Coast AQMD (909) 396-2696 cperri@aqmd.gov	Bellon seal valves 500 ppmvd			

CAPCOA BACT Clearinghouse

Source Category - 136

Process Valves - Gate, Globe, and Ball

BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE

Equipment or Process: Pumps

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Pacific Offshore Pipeline Co. Fugitive hydrocarbon emissions from pumps in liquid service at an oilfield natural gas processing plant	2/4/97 (A/C no. 9047) A350-750-97 District Contact: Steve Sterner Santa Barbara Co. APCD (805) 961-8886 sterners@sbcapcd.org	Double mechanical seal and barrier fluid system; leak detection and repair program 500 ppmv THC threshold using EPA Method 21				
Lone Star Gas Liquids Processing, Inc. Pump and compressor seals at chemical plants	12/13/95 (A/C no. S-71-1-3 & S-71-4-4) A350-702-96 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909	Inspection and maintenance program pursuant to SJVUAPCD Rule 4452 500 ppmv at leaks				

CAPCOA BACT Clearinghouse

Source Category - 137

Pumps

BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE

Equipment or Process: Reactor with Atmospheric Vent

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Amvac Chemical Corp. 30,000 lbm/day Pentochloronitrobenzene chlorination unit	3/23/90 (App. no. 197812) A360-438-90 District Contact: John Yee South Coast AQMD (909) 396-2531					Micropul baghouse controlling crude PCNB dryer and custom three-stage caustic scrubber controlling several emission points 1 lbm/day enforced with 8-hour test; 99% baghouse control efficiency; 99% scrubber control efficiency
Lonza Corp. Three Pfaudler reactors, two chlorosulfonic acid weigh tanks, and a hydrochloric acid storage tank	4/28/87 (App. no. 149532) A360-236-87 District Contact: Milton Cohen South Coast AQMD (909) 396-2508 mcohen@aqmd.gov					Falling-film packed absorber with offset tails tower, and stripper absorber all vented to a caustic trap 99.9% control 27 lbm/day
Stepan Chemical Co. Sulfur trioxide gas unit (680 lbm/hr S input capacity)	1/20/87 (App. no. 150942) A360-213-87 District Contact: Permit Services South Coast AQMD (909) 396-3385			Caustic scrubber No limit (Estimated control level of 99.5%)		
Amvac Chemical Corp. Reactors, tanks, and accessories for manufacturing insecticide	11/26/86 (App. no. 146831) A360-178-87 District Contact: John Yee South Coast AQMD (909) 396-2531	Afterburner and scrubbers No limit (Estimated control level of 99.99%)				

CAPCOA BACT Clearinghouse

Source Category - 138

Reactor with Atmospheric Vent

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Rendering - Evaporators, Cookers, and Dryers

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name &	A/C Issue Date & ARB	BACT AND CORRESPONDING EMISSION CONTROL LEVELS
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Description	File No.	VOC/HC	NOx	SOx	CO	PM/PM10
<p>Dan Copp Crushing Corporation</p> <p>Crushing, screening, and conveying operations at 450 ton/hr concrete and asphalt recycle plant</p>	<p>9/8/93</p> <p>(A/C no. S-1926-1-0)</p> <p>A390-594-93</p> <p>District Contact: Tom Goff San Joaquin Valley Unified APCD (805)862-5200</p>					<p>Water suppression for screen and conveyors; DCE model no. DLMV 30/15F10 on for crusher</p> <p>0.0252 lbm/ton</p>
<p>Darling-Delaware Co.</p> <p>Animal rendering operation with steam heated cooker (Controls required to reduce odor)</p>	<p>12/8/89</p> <p>(A/C no. 1100010104)</p> <p>A370-435-90</p> <p>District Contact: Martin Keast Fresno Co. APCD (209) 445-3239</p>	<p>Afterburner</p> <p>(Estimated HC control level of 99%)</p>				
<p>Darling Delaware Co.</p> <p>Rendering plant, including cookers, condensers, and presses</p>	<p>10/18/89</p> <p>(App. no. 186623)</p> <p>A370-360-90</p> <p>District Contact: Rob Castro South Coast AQMD (909) 396-2552 rcastro@aqmd.gov</p>					<p>Afterburner/waste heat boiler and Venturi scrubber</p> <p>No limit (Expected control level of 90%)</p>

CAPCOA BACT Clearinghouse

Source Category - 140

Rendering - Evaporators, Cookers, and Dryers

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Rendering - Grease and Blood Processing

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
<p>Foster Food Products (Rendering Plant)</p> <p>Anco-Eaglin Feather Hydrolizer with 240 ton/day throughput capacity</p>	<p>2/19/98</p> <p>(A/C no. N-1252-1-2)</p> <p>A370-848-98</p> <p>District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909</p>	<p>3.2 MMBtu/hr thermal oxidizer</p> <p>2.4 lbm/day</p>				<p>3.2 MMBtu/hr thermal oxidizer</p> <p>5.7 lbm/day</p>

Foster Food Products (Rendering Plant) Anco Perk Pans and the Dupps Expeller with 696 tons/day throughput capacity	2/19/98					Odor scrubber with a particulate removal system that consists of a particulate scrubber with an overall control of 95% or better PM10 control 57.1 lbm/day (Equivalent to 95% control)
	(A/C no. N-1252-1-2) A370-847-98 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909					

CAPCOA BACT Clearinghouse

Source Category - 141

Rendering - Grease and Blood Processing

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Rock - Aggregate Processing

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Channel & Basin Reclamation 810 bhp limited-life diesel-fired internal combustion engine powering an electrical generator in a remote location. To be removed by May 31, 2001 (less than two years total life). Operation limited to 10 hr/day.	8/17/99 (A/C No.: S-33517-2-0 A330-956-00 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909 george.heinen@valleyair.org		Turbocharger and intercooler with timing retarded four degrees from standard setting 5.4 g/bhp-hr			
A & M Products 22.7 MMBtu/hr rotary aggregate dryer with Jauck Starjet SJG burner processing 15 tons aggregate per hour	4/13/95 (A/C no. S-1233-2-0) A390-654-95 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909		Use of LPG fuel 44.5 lbm/day (Equivalent to 0.14 lbm/MMBtu)	Use of LPG fuel 3.7 lbm/day (Equivalent to 0.012 lbm/MMBtu)		Fuller Company baghouse 27.1 lbm/day
CalMat Company 1000 ton/hr primary aggregate processing system, including jaw crusher	2/11/92 (A/C no. 233373) A390-630-94 District Contact: Lisa Mirisola South Coast AQMD (909) 396-2638 lbasilio@aqcmd.gov					Flex-Kleen baghouse No limit (Controlled emissions approximately 0.136 gr/dscf at 2350 scfm or 99% control efficiency)

CalMat Company 1000 ton/hr aggregate processing system, including two cone crushers	2/11/92 (A/C no. 233374) A390-629-94 District Contact: Lisa Mirisola South Coast AQMD (909) 396-2638 lbasilio@aqcmd.gov					Flex-Kleen baghouse No limit (Controlled emissions approximately 0.123 gr/dscf at 3100 scfm or 99% control efficiency)
Mark West Quarry 45 ton/hr secondary cone crusher and mineral screeners (addition to existing aggregate crushing operation)	4/2/93 (A/C no. 10641) A390-576-93 District Contact: Ted Hull Bay Area AQMD (415) 749-4919					Enclosures, curtains, and high 50 micron water mist foggers Visible emission opacity of Ringleman 0.5
Rio Rock Materials, Inc. Aggregate crushing and screening operation permitted to process 480 tons/hr throughput for 10 hours/day	2/9/93 (A/C no. S-0764-0001-00) A390-568-93 District Contact: Tom Goff/Hans Hu San Joaquin Valley Unified APCD (805) 862-5200					Baghouse on crushers, water sprays on all transfer points 0.0012 gr/dscf at 8000 scf for baghouse
Bluestone Aggregate Aggregate crushing and screening operation with a capacity to process 200 tons/hr; includes crushers, screens, stackers, and conveyors	7/15/92 (A/C no. S-0136-0001-00) A390-542-92 District Contact: Tom Goff San Joaquin Valley Unified APCD (805) 862-5200					Water spray bars, enclosures at entrances and exits of crushers 13.77 lbm/day
Horwitz Quarry 500 ton/hr electric asphalt base plant	2/25/91 (App. no. 230555) A390-524-92 District Contact: Permit Services South Coast AQMD (909) 396-3385					DCE model DLM V30/15F or DLM V60 /15F dust collector No limit (Expected control efficiency of 99%)
Horwitz Quarry 1000 ton/hr aggregate processing system	2/25/91 (App. no. 230546)					DCE model DLM V30/15F or DLM V60/15F dust collector

	A390-523-92 District Contact: Permit Services South Coast AQMD (909) 396-3385					No limit (Expected control efficiency of 99%)
Calmat Company 3000 ton/hr aggregate processing system operating 16 hours per day	9/12/91 (App. no. 241926) A390-522-92 District Contact: M. Quizon South Coast AQMD (909) 396-2639 mquizon@aqmd.gov					Baghouse No limit (Expected control efficiency of 99%)
Calmat Company 3000 ton/hr aggregate processing system operating 16 hours per day	9/12/91 (App. no. 233351) A390-521-92 District Contact: M. Quizon South Coast AQMD (909) 396-2639 mquizon@aqmd.gov					Baghouse No limit (Expected control efficiency of 99%)
Calmat Company 3000 ton/hr aggregate processing system operating 16 hours per day	9/12/91 (App. no. 241927) A390-520-92 District Contact: M. Quizon South Coast AQMD (909) 396-2639 mquizon@aqmd.gov					Baghouse No limit (Expected control efficiency of 99%)
Blue Diamond Materials 500 ton/hr portable aggregate processing plant	10/29/90 (App. no. 229973) A390-456-90 District Contact: Sean Cullins South Coast AQMD (909) 396-2655 scullins@aqmd.gov					Baghouse No limit (Estimated control of 99%)
Coffman Construction 300 cubic yards/hr concrete batch plant	9/4/90 (App. no. 228979) A390-455-90 District Contact:					Baghouse No limit (Estimated emission level of 0.0958 gr/dscf)

	Sean Cullins South Coast AQMD (909) 396-2655 scullins@aqmd.gov					
Puente Ready Mix, Inc. 200 cubic yard/hr concrete batch plant	4/18/90 (App. no. 225059) A390-449-90 District Contact: Sean Cullins South Coast AQMD (909) 396-2655 scullins@aqmd.gov					Baghouse No limit (Estimated emissions level of 0.0120 gr/dscf)
Santa Clarita Minerals Ilmenite ore benefaction system capable of processing 2,640 tons/day including rotary dryer, conveyors, screens, electrostatic and magnetic separators	5/9/90 (A/C no. 2015079) A390-448-90 District Contact: Rick Hawrylew South Coast AQMD (909) 396-2657 rhawrylew@aqmd.gov					Cyclone and baghouse Assumed capture efficiency of 84% and 99% for cyclone and baghouse, respectively
Owl Rock Products Co. Aggregate operation, including jaw crusher, screens, cone crusher, and conveyors with a capacity to process 1,200 tons/hr	5/2/90 (App. nos. 209433, 209434, 209436 thru 209438, and 209419 thru 209424) A390-447-90 District Contact: Rick Hawrylew South Coast AQMD (909) 396-2657 rhawrylew@aqmd.gov					Dust collectors No limit (Assumed capture efficiency 99%)
Wyroc, Inc. 2500 ton/day aggregate plant	5/12/89 (App. no. 186168) A390-427-90 District Contact: Permit Services South Coast AQMD (909) 396-3385					Baghouse, fabric filter No limit (Estimated control level of 93%)
Massey Sand & Rock, Inc. 9600 ton/day rock crushing operation	6/20/89 (App. no. 187381) A390-409-90 District Contact: Permit Services					Baghouse No limit (Expected emission level of 72 lbm/day)

	South Coast AQMD (909) 396-3385					
Asphalt Const. Co., Inc. 175 tons/hr aggregate plant	12/21/88 (A/C no. 1014009B) A390-307-89 District Contact: Tom Paxson Kern Co. APCD (805) 861-2593					Water spray No limit (Estimated control level of 50%)
Kern Rock Co. Aggregate hoppers and conveyors rated at 300 tons/hr	3/9/89 (A/C no. 1025018A) A390-306-89 District Contact: Tom Paxson Kern Co. APCD (805) 861-2593					Water spray at transfer points; enclosure of transfer points No limit (Expected emission level of 59.88 lbm/day)
Granite Const. Co. 300 ton/hr portable rock plant powered by a 380 hp diesel reciprocating engine	3/27/87 (A/C no. 86-118) A390-268-88 District Contact: George Heinen San Joaquin Co. APCD (559) 230-5909					Spray foggers 59 lbm/day 47% control efficiency
Tutor Saliba Corp. 270 ton/day aggregate receiving and storage system	7/7/87 (App. no. 158121) A390-227-87 District Contact: Ron Lem South Coast AQMD (909) 396-2654 rlem@aqmd.gov					Water spray 9.7 lbm/day (Estimated level of 50% control)
Granite Const. Co. 500 ton/hr portable rock crusher	4/29/87 (A/C no. 8666) A390-214-87 District Contact: Aleta Kennard Sacramento Metro AQMD (916) 386-6650					Water spray bars 15% opacity (approx. 70% control)
Granite Const. Co. 1000 ton/hr rock crushing	10/9/86 (A/C no. 8470)					Sonic dry fog dust suppression system

plant	A390-155-86 District Contact: Aleta Kennard Sacramento Metro AQMD (916) 386-6650					10% opacity, except for 15% opacity at crushers (Assumed control level of 97%)
Diamond A Ranch Quarry (Oliver de Silva) 300 ton/hr rock crushing plant	6/2/86 (A/C no. 30724) A390-142-86 District Contact: Greg Stone Bay Area AQMD (415) 771-6000					Water spray and baghouse 0.02 gr/decf 99.7% control 10% opacity

CAPCOA BACT Clearinghouse

Source Category - 144

Rock - Aggregate Processing

BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE

Equipment or Process: Rotogravure Printing - Publication and Packaging

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Merced Color Press Heidleberg Harris model G-19 offset lithographic heatset printing press and 9.2 MMBtu/hr natural gas-fired Thermal Electron model A3406E drying oven served by REECO Retherm model E regenerative thermal oxidizer	5/30/97 (A/C no. N-1646-21-0) A410-796-97 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909	18 MMBtu/hr REECO Retherm Model E regenerative thermal oxidizer 70.1 lbm/day	Natural gas fuel in the dryin oven 65 ppmvd @ 3% O2			
Dopaco, Inc. Three Champlin rotogravure printing presses	11/10/87 (A/C no. 87-125-127) A340-265-88 District Contact: George Heinen San Joaquin Co. APCD (559) 230-5909	Low VOC ink (300 g/l maximum) 807.7 lbm/day 84.75 tons/yr				
Scientific Games Rotogravure press	4/5/85 (A/C no. 31248)	Incinerator 96% control				

	A340-140-86 District Contact: Ellen Linder Bay Area AQMD (415) 771-6000				
Container Corp. of America Two rotogravure print lines	1/2/86 (A/C no. 30834) A340-110-86 District Contact: Joe Slamovich Bay Area AQMD (415) 771-6000	Low solvent coatings 73.6 tpy, 2.5% VOC content			

CAPCOA BACT Clearinghouse

Source Category - 146

Rotogravure Printing - Publication and Packaging

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Sand Handling System with Shakeout and/or Muller in System

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Corona Ind. Sand Project 1000 ton/day bulk loadout system for sand	11/25/86 (P/O no. 147979) A390-225-87 District Contact: Permit Services South Coast AQMD (909) 396-3385					Scrubber 7 lbm/day (Equivalent to 98% control efficiency)
Corona Ind. Sand Project 100 ton/hr sand drying, screening, and storage system	11/25/86 (P/O no. 147975) A390-221-87 District Contact: Permit Services South Coast AQMD (909) 396-3385					Cyclone separator and scrubbers 72 lbm/day

CAPCOA BACT Clearinghouse

Source Category - 148

Sand Handling System with Shakeout and/or Muller in System

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Screen Printing and Drying

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS
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		VOC/HC	NOx	SOx	CO	PM/PM10
Smart Cards USA, Inc. 4'10"W by 3'7" L by 4'0" H Sakurai model SC-72A sheet fed silkscreen press with motor drive use for screen printing on plastic stock, with an ultra-violet light curing oven and a cooling chamber.	12/21/99 (A/C No.: 358383) A340-966-00 District Contact: Rene Loof South Coast AQMD (909) 396-2544 rloof@aqmd.gov	Low-VOC ultra-violet inks with a VOC content of less than 50 grams/liter 3,780 lbs/ calendar month facility wide				
Solutions Unlimited, Wilson's Art Studio 84-inch sheet/web Thieme model 5040 ultra-violet four-color screen printing with 300 kW ultra-violet lamps, used for vinyl car window decals, plastic license plates, and scratch-off products.	n.d. (A/C No.: 341072) A340-936-00 District Contact: Rick Lee South Coast AQMD (909) 396-2629 rlee@aqmd.gov	Use of ultra-violet inks on all products except scratch-off products; water-based ink at 4.9 lb VOC/gal for scratch-off products 152 lbs ROG/day facility limit				
Tri-Tech Graphic Inc. Screen print line # 7 with Screen Printing Enterprise Inc. model 3PI-482AE UV curing reactor with two lamps	1/21/98 (A/C no. C-1251-8-1) A340-822-98) District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909	No Control 5 lbm/day and 1500 lbm/yr for lines #3 thru 7				
Tri-Tech Graphic Inc. Screen print line # 6 with Advance Viking L.S. press and Amco-Procure model 91-00013-01 UV curing unit with lamp	1/21/98 (A/C no. C-1251-7-2) A340-821-98) District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909	No Control 5 lbm/day and 1500 lbm/yr for lines #3 thru 7				
Tri-Tech Graphic Inc. Screen print line #5 with Advance Viking L.S. press and Advance Quantum with UV dryer	1/21/98 (A/C no. C-1251-6-2) A340-820-98 District Contact: George Heinen	No Control 5 lbm/day and 1500 lbm/yr for lines #3 thru 7				

	San Joaquin Valley Unified APCD (559) 230-5909				
Tri-Tech Graphic Inc. Screen print line #4 with Hartfeldt model H.S.B. press, Advance Eagle press, and Amco-Procure model 91-0012-01 UV curing unit with lamp	1/21/98 (A/C no. C-1251-5-2) A340-819-98 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909	No Control 5 lbm/day and 1500 lbm/yr for lines #3 thru 7			
Tri-Tech Graphic Inc. Screen print line #3 with Advance Viking RP press, Amco-Procure Model 91-0009-01 UV curing unit with lamp	1/21/98 (A/C no. C-1251-4-2) A340-818-98 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909	No Control 5 lbm/day and 1500 lbm/yr for lines #3 thru 7			
Tri-Tech Graphic Inc. Screen print line #2 with Advance Viking RP semi-automatic press, two P&PW one arm presses, and 1.25 MMBtu/hr Cincinnati conveyorized natural gas-fired dryer	1/21/98 (A/C no. C-1251-3-1) A340-817-98 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909	No Control 80.4 lbm/day and 13400 lb/yr for lines #1 and 2			
Tri-Tech Graphics Inc. Screen print line #1 with Advance Viking RP semi-automatic press, one P&PW and two KCI one-arm manual presses and one 0.5 MMBtu/hr Cincinnati conveyorize natural gas-fired dryer	1/21/98 (A/C no. C-1251-2-1) A340-816-98 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909	No Control 80.4 lbm/day and 13400 lb/yr for lines #1 and 2			

CAPCOA BACT Clearinghouse

Source Category - 149

Screen Printing and Drying

BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE

Equipment or Process: Sewage Treatment Plants

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
North of the River Sanitary District, No. 1 sewage treatment plant Sewage treatment plant	5/26/92 (App. no. 0175002) A420-551-92 District Contact: Tom Goff San Joaquin Valley Unified APCD (805) 862-5200	Covers for preliminary raw sewage processing and digester gas incineration 0.61 lbm/day				

CAPCOA BACT Clearinghouse

Source Category - 150

Sewage Treatment Plants

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Smokehouse

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Berry Seed and Feed Conveying equipment capable of handling 4,000 tons/day	4/15/96 (A/C no. N-1758-15-4) A370-693-96 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909					Murphy-Rodgers model MRY-7 baghouse with fabric filters 0.004 lbm/ton

CAPCOA BACT Clearinghouse

Source Category - 151

Smokehouse

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Solid Material Handling - Dry

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Cogeneration National Corp. Two 1700 tons each storage silos with a throughput process rate of 557 tons/day	12/13/85 (A/C # 84-182ab A390-980-00 District Contact: George Heinen					Bagouse with a maximum air-to-cloth ratio of 5 to 1 99% control efficiency rate

	San Joaquin Valley Unified APCD (599) 230-5909 george.heinen@valleyair.org					
Corn Products Two 1700 tons fuel storage silos with a throughput process rate of 1440 tons/day	10/29/86 (A/C # AP 84-185ab) A390-978-00 District Contact: George Heinen San Joaquin Valley Unified APCD (599) 230-5909 george.heinen@valleyair.org					American Air Filter or equivalent baghouse with a maximum air-to-cloth ratio of 5:1 99% control efficiency rate
Corn Products 1440 tons/day truck loading (dump) station used only when firing on coal	10/29/86 (A/C # AP 84-182) A390-977-00 District Contact: George Heinen San Joaquin Valley Unified APCD (599) 230-5909 george.heinen@valleyair.org					Total enclosure of the loading station with all emissions vented to a baghouse with a maximum air-to-cloth ratio of 5 to 1 99% control efficiency rate
California Portland Cement Company 300 tons/hr Cement railcar unloading with conveying equipment to storage (storage not included in permit unit)	5/10/94 (App. No.: # 291257 and 291258) A430-618-94 District Contact: Wilma Wilson South Coast AQMD (909) 396-2444 wwilson@aqmd					Mikro-Pulsaire Model 36S-10-30 baghouse No limit
Metropolitan Stevedore Co. (operator) and RIC Co. (owner) Unloading of cement from conventional ships with Siwertell unloader	4/1/93 (App. nos. 256054, 256055, 256184, and 256205) A309-605-94 District Contact: R.H. Hawrylew South Coast AQMD (909) 396-2657 rhawrylew@aqmd.gov					Ship hold baghouse and hatch cover; baghouse vents storage silos, also No limit
Wilmington Liquid Bulk Terminals, Inc. Cement conveying and loading system	1/29/91 (App. no. 221901) A390-525-92					Fuller Baghouse No Limit (Expected control efficiency of 99%)

	District Contact: Kevin Eshraghi South Coast AQMD (909) 396-2604 keshraghi@aqmd.gov					
Celite Corporation Automated diatomaceous earth packing facility (processing line no. 3) with a processing capacity of 36 tons/hr	5/7/91 (A/C no. 8202) A380-479-91 District Contact: Sanjib Mukherji Santa Barbara County APCD (805) 961-8874					Reverse pulse jet cleaning type baghouse with polypropylene filter socks and cyclone in series 99.979% control efficiency 0.009 gr/dscf
Central California Almond Growers Association 100 ton/hr almond precleaning and hulling operation	8/30/90 (A/C no. 11400702024) A370-475-91 District Contact: Martin Keast San Joaquin Valley Unified AQMD (Fresno Zone) (209) 445-3239					Baghouse 0.032 gr/dscf 99% control efficiency
James Hardie Bldg. Prods. Inc. 470,000 lbm/day building material processing system for shake mfg.	10/31/89 (App. no. 206292) A410-403-90 District Contact: Permit Services South Coast AQMD (909) 396-3385					Baghouse No limit (Estimated emissions of 53 lbm/day)
James Hardie Bldg. Prods. Inc. 470,000 lbm/day building material processing system for composition roof manufacturing	10/31/89 (App. no. 206291) A410-402-90 District Contact: Permit Services South Coast AQMD (909) 396-3385					Baghouse No limit (Estimated emissions of 12 lbm/day)
Eagle Roofing Products Roofing tile line (trim line only) fired on natural gas and having a processing rate of 30 units/ minute	4/11/89 (App. no. 184586) A390-389-90 District Contact: Permit Services South Coast AQMD					Baghouse No limit (Estimated emissions of 2 lbm/day)

	(909) 396-3385					
Eagle Roofing Products Standard-weight roofing tile line fired on natural gas and having a processing capacity of 100 units/minute	4/11/89 (App. no. 184585) A390-388-90 District Contact: Permit Services South Coast AQMD (909) 396-3385					Mikropulsaire baghouses No limit (Estimated emissions of 8 lbm/day, respectively)
Eagle Roofing Products Lightweight roofing tile line fired on natural gas and having a processing capacity of 100 units/minute	4/11/89 (App. no. 184584) A390-387-90 District Contact: Permit Services South Coast AQMD (909) 396-3385					Mikropulsaire baghouses No limit (Estimated emissions of 16 lbm/day, respectively)
Beadex Mfg. Co. Roofing material processing system	9/18/89 (App. no. 183482) A430-368-90 District Contact: Permit Services South Coast AQMD (909) 396-3385					Baghouse No limit
Wheelabrator Delano Energy Co. Fuel reclamation screening and storage	5/27/88 (A/C no. 3107006) A430-289-88 District Contact: Tom Goff Kern Co. APCD (now the San Joaquin Valley Unified APCD) (805) 862-5200					Ventilation systems w/fabric collector 0.010 gr/dscf 0.83 lbm/hr
Wheelabrator Delano Energy Co. Fuel receiving operation: underground hopper and portable wood chipper	5/27/88 (A/C no. 3107003) A430-286-88 District Contact: Tom Goff Kern Co. APCD (now the San Joaquin Valley Unified APCD) (805) 862-5200					Ventilation systems w/fabric collector 0.010 gr/dscf 2.91 lbm/hr

Wheelabrator Delano Energy Co. Fuel receiving operation: truck dumper	5/27/88 (A/C no. 3107002) A430-285-88 District Contact: Tom Goff Kern Co. APCD (now the San Joaquin Valley Unified APCD) (805) 862-5200					Ventilation systems w/fabric collector 0.010 gr/dscf 3.18 lbm/hr
La Habra Products Plaster mixing and bagging system	7/9/87 (App. no. 156328) A390-251-87 District Contact: Fred del Rosario South Coast AQMD (909) 396-2663					Baghouse No limit (Estimated emission level of 5.3 lbm/day)
Pozzolan Inc. Fly ash receiving and storage system	10/22/86 (A/C no. 148047) A390-201-87 District Contact: Lisa Mirisola South Coast AQMD (909) 396-2638 lmirisola@aqmd.gov					Baghouse No limit (Estimated emissions control level of 99%)

CAPCOA BACT Clearinghouse

Source Category - 155

Solid Material Handling - Dry

**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE
CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE**

Equipment or Process: Solid Material Handling - Wet

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Beadex Mfg. Co. Wet material processing system for roofing manufacturing	9/18/89 (App. no. 183483) A430-369-90 District Contact: Permit Services South Coast AQMD (909) 396-3385					Baghouse No limit

CAPCOA BACT Clearinghouse

Source Category - 156

Solid Material Handling - Wet

BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE

CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE

Equipment or Process: Solid Material Storage - Enclosed

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Cogeneration National Corp. 120 tons/hr canopy-covered coal conveyors	12/13/85 (A/C # AP 85-184) A390-981-00 District Contact: George Heinen San Joaquin Valley Unified APCD (599) 230-5909 george.heinen@valleyair.org					Total enclosure of all points. Water-surfactants solution spray at an accumulative rate of 2.5 gals/ton 99% control efficiency rate
Corn Products Coal transfer system including bucket elevator and 120 tons per hour belt conveyor	n.d. (A/C # AP 84-184) A390-979-00 District Contact: George Heinen San Joaquin Valley Unified APCD (599) 230-5909 george.heinen@valleyair.org					American Air Filter or equivalent enclosure of transfer points and ducting through a baghouse with maximum air-to-cloth ratio of 5 to 1 99% control efficiency rate
Mt. Poso Cogeneration Company 50-ton lime storage silo	2/21/89 (A/C no. 4177005) A430-305-89 District Contact: Tom Goff Kern Co. APCD (now the San Joaquin Valley Unified APCD) (805) 862-5200					Pulse-jet cleaning fabric collector 99.8% control 0.51 lbm/day

CAPCOA BACT Clearinghouse

Source Category - 157

Solid Material Storage - Enclosed

BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION DATA SUBMITTED TO THE CALIFORNIA AIR POLLUTION CONTROL OFFICERS ASSOCIATION BACT CLEARINGHOUSE

Equipment or Process: Solid Material Unloading - Railcar Dumper

Revision: 3.0

Equipment Rating: All

Date 07/18/00

Project Name & Description	A/C Issue Date & ARB File No.	BACT AND CORRESPONDING EMISSION CONTROL LEVELS				
		VOC/HC	NOx	SOx	CO	PM/PM10
Berry Seed and Feed Rail receiving pit expansion to	4/15/96 (A/C no. N1758-15-4)					P&F model JHT 10-224-3152 baghouse with fabric filters

4,000 tons/day	A370-692-96 District Contact: George Heinen San Joaquin Valley Unified APCD (559) 230-5909					0.0017 lbm/ton
CAPCOA BACT Clearinghouse	Source Category - 159					Solid Material Unloading - Railcar Dumper